

Primroses

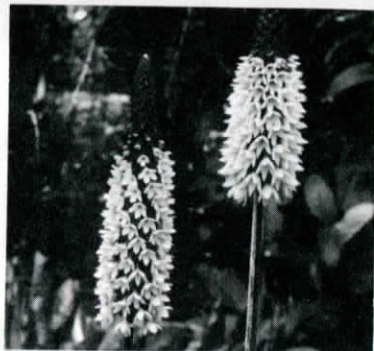


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P. Vialii

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On the cover

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(See story on page 79)

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AN INTRODUCTION TO *PRIMULA VIALII*

by Barbara Flynn
Redmond, Washington

Primula vialii is not only a most untypical primula, its history is fascinating too.

The first explorer to find this plant was Pere Delavay, at Lankiung, Yunnan, in 1888. He sent it to Paris with the name *P. Viali* (after his good friend Pere Vial). There the plant, like so many of Pere Delavay's discoveries, stayed in a Paris herbarium, described by Franchet, but otherwise unnoticed.

It was George Forrest who next found this species in 1906 in mountain meadows opening into the Likiang Valley. I can do no better than to quote his notes - "a superb species of the Section Capitatae with flowers in densely crowded spikes 2-3 in. in length each bearing hundreds of small deflexed fragrant blooms of deep purplish hue; but the remarkable feature is the magnificent coloring of the calyces which are a vivid scarlet-crimson and form a striking contrast to the rich blue of the expanded flowers. Plants grow in crowded masses, generally in moist grassy openings in pine-forests at an elevation of 10-11,000 ft." It was also larger than the plant found by Pere Delavay, and had fine white hairs.

Forrest named this plant *P. Littoniana* for his friend Consul Litton of Tengyreh, who died from fever, and sent it and other collected plants to Arthur Kilpin Bulley, a cotton broker who financed Forrest's trips. Mr. Bulley's home is now the site of Liverpool University Botanic Garden.

Mr. Bulley was actually lucky to get anything at all because of horrendous civil wars in progress. Of Forrest and his 17 collectors and servants, only Forrest himself and one servant escaped alive. Forrest stated that he owed his life to seeing the unmistakable figure of his friend, Pere Dubernard, beckoning him to go down a stream. Wounded and in very bad shape, Forrest did this and escaped only to learn that Pere Dubernard had been tortured and slaughtered three days prior to the warning!

Forrest had only Pax's *Primula* monograph for reference and there was no mention of the Delavay discovery, so our species remained *P. Littoniana* for many years. It was exhibited for the first time in 1909 and created an immediate sensation.

In 1922 Forrest returned to China. Near Muli, in SW Szechwan, he found a larger variety of *P. Littoniana*, which he called 'robusta'. These specimens yielded forty inch scapes, the flower covered portions of which measured eighteen inches! Apparently it was marketed under the name 'grandiflora'. The flowers were light lavender rather than the blue of the earlier variety.

Primula vialii comes easily from fresh seed in the fall. If it is not convenient to sow at that time then the seed can be stored in the refrigerator until the following spring. Seedlings can be planted directly into the ground or put in 4" pots. This is because the plant resents disturbance.



Primula viallii

photo by Barbara Flynn

It needs a rich, light soil in partial shade and plenty of water in the growing season. It disappears early, is quite dormant during winter and has no visible resting-bud. It is also late in reappearing.

Barnhaven Notes state: "No glass pane since April 14th when they

became active after dormancy. They seem happy through the heavy rains. May 25 - buds are fiery red. June 3rd - Three lavender flowers are open while the top is like a burning cone. June 23 - Scape now measures 3 1/2" the lower 3" is full of row upon row of pendant campanulate stars with

sharp points. The upper half of the cone is still full of fiery red buds. The leaves which are covered thickly with soft white hairs are 8" long and are 1 1/4 inches wide at the widest point."

It would seem quite possible that the monocarpic habits of *P. viallii* are due to expecting signs of life too soon and digging over the dormant plants. Plants have been recorded as living for at least five years, and reseeded freely. A case in point was my friend's young plant with three spikes that proved irresistible to a passing deer! However, the next year the plant was huge and bloomed beautifully, becoming definitely perennial. Other reports indicate that if the first year's flower stalk is cut off, the plant has a better chance of surviving for many years; similar to the Blue Poppy *Meconopsis betonicifolia*.

There seems to be some problem with setting seed. Apparently in some areas insects do their stuff and in other areas they do not seem to realize that this is a plant with needs! Perhaps it is best to pollinate the flowers yourself to be sure of seed. One might also try hybridizing.

In conclusion, there seem to be some different forms of this primula and it would be appropriate to grow seed from as many sources as possible for a further report in the future.

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PRIMULA JULIAE HYBRIDS SAKATA TYPES UPDATE

by Donald D. Keefe
Redmond, Washington

In the Winter Quarterly of Primroses (Vol.48, No.1, page 16), an Article on the Sakata Types was fortuitously missing the last couple of paragraphs and left Herb Dickson's Comments without an ending. Starting with the corrected paragraph:

Herb Dickson's Comments

The following is a quote from Herb Dickson's Article in the APS Quarterly, Winter 1981. "... Recently a strain of mini-juliana seed has come on the market. Seed and plants are generally available. These come in the most gorgeous array of colors imaginable - glowing reds, pinks, purples and yellows and soft pastel shades and tints in fantastic color combinations."

"Don't Know When To Quit. These new julianas cover themselves with so many blossoms in the spring that foliage is almost hidden. The plants have only one fault. They don't know when to quit blooming. This lack of dormancy makes them subject to winter damage in severe weather. . . ."

Seed packets for five types of Sakata Julian Hybrids were listed in Sakata's 1988-89 catalog (and in the APS Quarterly, Winter 1989-90). These were listed as 'Hybridas', 'Bicolors', 'Cheerleaders', 'Gold Ridges', and 'Cherriette'. In Sakata's 1989-90 Catalog 'Gold Ridges' and 'Cherriette' types are no longer listed. I won't miss the Cherriette's, as I do not like the spread out shape of the blooms, but I will miss

the Gold Ridges. I have two of the tiniest gold lace fire engine red plants that I believe came from the 'Gold Ridge' types of seeds.

Bill Mason of Chiswick, London, has managed to purchase some of the Julian 'Gold Ridge' mixed seed from the Syon Park Garden Centre, Isleworth, Middlesex, England. They were also seedling from the Sakata semi-miniature F1 hybrid 'Lovely' series.

The Sakata Seed America, Inc. (P.O. Box 880, Morgan Hill, CA 95038-880) sells Sakata's Primula seed. They sell strictly to wholesale seed dealers in the United States, Canada, Mexico, and Central America. This affiliate of the Sakata Seed Corporation in Japan, advised me if I am interested in purchasing any Sakata seed, to contact my local or regional seed dealers.

Dorothy Springer advised me that a large nursery in Tacoma sold Sakata julian 'Hybrida' plants to the public last spring. It might be a good place to check out early next year when the Sakata julianas are displayed.

As usual, the Seed Exchange Chairman has placed an order with the Sakata Seed Corporation of Japan. Hopefully, Julian 'Hybrida' seed will be included. The Sakata Seed Company has generously, in the past, filled our Seed Exchange's request with donated seed.

* * *



P. sieboldii

photo by Kazuo Harra

A FAR EASTERN STAR - PRIMULA SIEBOLDII

by Carla McGavran
Renton, Washington

Primula sieboldii is a native of Japan, Korea and the eastern part of the Himalayas. It was grown for hundreds of years in Japan, most often as a pot plant. The Japanese have many traditions to do with its culture. Over two hundred years ago, when there were many wild plants in Japan, gardeners selected interesting wild clones and seedlings resulting in nearly 400 clones in cultivation. There are still several hundred named clones kept in cultivation by *P. sieboldii* fanciers in Japan.

Primula sieboldii was named for the German botanist Phillip Franz Von Siebold who introduced it in 1862. A few years later it was introduced into English gardens and soon became a popular plant. Fifty years ago it was still a very popular plant in both England and the United States with garden catalogs listing many named clones. It seems a shame it is not used more now, as it is a very tough and easy perennial.

The leaves of *P. sieboldii* are a soft light green, crinkled and quilted with

scalloped and toothed edges and covered with small white hairs. The petiole is often as long or longer than the leaf blade. One author suggested that it looked like a "tender greenhouse plant" but it is in reality a very hardy plant. The leaves come through the ground in spring looking like tiny green mouse ears. The bloom stems are eight to twelve inches tall with four to eight blossoms about an inch in diameter. The five petaled flowers resemble the flowers of a woodland phlox. This is one plant that is willing to deviate from the harsh magenta flower color that is the norm for primulas of this section, in fact that color seems to be a favorite of the entire genus.

The flowers of *P. sieboldii* in the wild are variously described as "pink with a blue cast", "rose pink", "lavender pink" and "deep pink". In the wild the

bloom color may be quite variable, but in cultivation it has even more variation from pure white to pink, lavender blue, magenta, rose or many striped and spotted patterns combining several colors.

Not only is the color variable but the shape of the flower may vary also. Some blooms have full wide petals forming a round flower, others have deep serrations in the petals, some so much that they resemble a snowflake.

Primula sieboldii is a woodland plant rather than an alpine but comes from areas of cold winters and hot summers. This gives us a plant that is quite adaptable and hardy in many conditions. It is completely deciduous and it must be well marked to prevent digging it up during dormancy. It usually appears in late march and blooms over a long period in April and May.



Showbench for Exhibition Sakurasoh (*P. sieboldii*) Jindai Metropolitan Botanic Garden
photo by Kazuo Hara



P. sieboldii in native surroundings - Japan.

After setting seed in July or August it soon goes dormant and is then quite drought tolerant. In the late summer and fall the roots have a tendency to rise to the surface and benefit from a light mulch to protect them from heavy winter freeze.

Primula sieboldii prefers well drained moist humus in light shade but seems to grow under almost any conditions. One author described it as coming from the "plant-with-care-then-leave-alone-and-don't-worry-about" field of gardening. This plant has even proved hardy in the upper Midwest.

Primula sieboldii can be propagated by division in late summer as it is going dormant. An alternate method is by root cuttings taken in late fall or early winter. This would be a good way to mail starts of a good clone to someone at a distance. If a person only wants a few number of plants, divisions would be the easiest since the plant will form large clumps quickly.

Propagation by seed is another method thought by some to be difficult with *P. sieboldii*. The problem seems

to be that *P. sieboldii* seed needs some winter freezing to break dormancy. Fresh seed planted outside in fall will germinate easily the following spring.

Easy to cultivate, easy to propagate *Primula sieboldii* also makes a very good cut flower, lasting many days after cutting. With all of this going for it why aren't we all growing more *P. sieboldii*?

* * *

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* * * * *

CROSSING BORDERS WITH PLANTS

by Dr. John Kerridge
Vancouver, British Columbia

How did this business of importing plants all start? Well, my wife and I had a small, inactive company and some extra funds that would have been nice to spend.

But, "no" said the accountant, "you cannot have the cash".

Not fully understanding just why we couldn't have the cash to spend as we wanted (I guess that is why I will never make an accountant). We asked ourselves: "What to do?" "Just what would it be really nice to do"?

After some thought we reflected "The Company is going to import primroses!"

"Well!" the accountant said with raised eyebrows "I suppose the Company can do anything it wants". And with that, Saltspring Primroses was started.

Now, about bringing plants in by Air from England. Here we have had some experiences, and there in lies a tale.

PLANTS FROM ENGLAND

Air Cargo is so swift these days. A package put on the plane arrives the same day just as you and I do as passengers. You would think so, but think again.

Unfortunately flights from Europe usually arrive in Vancouver in the late afternoon, just in time to see the Agricultural Inspector at Air Cargo go home for the day at 4 PM. Just try to have the Inspector from the Passenger Area come to the Air Cargo area for you. I wish you the best of luck; they are too busy to leave. Your delicate

babies are going to wait all night at the airport; and a sleepless one for you if it's during hot weather.

Driving to and from, between the Cargo and Passenger Terminals, trying to get help from the Inspector is exhausting; particularly when trying to park at a busy airport.

The next day, armed with your Bill of Sale and Import Permit, things should go smoothly. Positively you think, "the Inspector will have checked your shipment early and with the Phytosanitary Certificate from UK Inspector accompanying it, all is well".

Or is it? There can be a nasty red tape wrapped around the box. Quarantined!

A thousand things can go awry. For instance, on one occasion, the 'phytosanitary' had much detail but neglected to state the absence of the dreaded Golden Nematode, (*Globodera Rostachiensis*). Even though this nematode was not known to occur in the area of origin, entry was refused. By now it was 3 PM.

By a stroke of good fortune I had met the UK Inspector in the past, and managed to rise him by telephone in Stafford. It was 11 PM in England and he was doubtless in bed. Nevertheless, he agreed to tell the Canadian Inspector all was well if I called back with the Canadian Inspector on the line.

Well, I never did get those two in touch. The phone was not answered again in spite of many tries. In this type of situation the different time zones can be a major obstacle. Canada is coming

to work at 8 AM as England is leaving work at 4 PM.

A Secretary in Stafford, taking pity on me, said they would send a cable. It never came. Probably bogged down in Ottawa somewhere.

By now my poor plants and I are becoming really exhausted. Eventually, we were given a conditional release stating "To be grown in pots and containers only".

We're not finished yet. Clearing the Agricultural Inspection, one then goes on to Customs.

Knowing where to find Customs in the Air Cargo complex helps. Working myself up a flight of stairs and through a maze of corridors towards the back of the building I finally found Customs; behold, a line up! While standing in line, the door in front of me closed sharply at 4 pm. One does learn by experience.

Importing plants is not an exercise for the faint hearted. It is not unusual to find myself in this scenario: It's a hot humid day; I'm pressing for an Agriculture Inspection (along with a crowd of other customers); My emergency telephone pager is going off repeatedly; I can't find a telephone; Time on my parking meter is running out; There is no place to get quarters for either the telephone or parking meter; I'm already an hour late for appointments; My downtown office is full of irate patients; It's rush hour; and There is still customs to clear before they close. Having achieved the paper chase of clearing Agriculture Inspection and Customs, its back to the Air Cargo Terminal where I discovered my package of plants could not be found until a search was conducted.

"Well", you ask, "why not arrange the arrival of the plants on a nice quiet day or when on vacation"? Unfortunately, the requested arrival date may bear no relation to actual shipping dates. One is so dependent on supply

and when things are ready at the other end. The first plants I requested for spring delivery came in late fall, just in time for the bitterest freeze in years.

It takes personal contact by 'phone or FAX' to tie into the shipping schedule. Once, having lost an Import Permit, it was possible to FAX a copy instantly; but only after an unusual nocturnal search under most of the doormats of Fairview Slopes above False Creek. It had been left there for me, but I had lost the exact address. The Import Permit had to be FAX'd by midnight! Alas the scrapes we get in!

One other thing to remember; all Air Freight packages are identified and traced by a 'Way Bill Number'. Lose this at your peril for computers have one-track minds and are stubborn.

A smoother system is obviously possible, and so it is lately. KLM and Wardair are excellent airlines. By sitting in an armchair and telephoning them that a package is due in on a certain flight number, requiring an Agriculture Inspection, giving them the 'Way Bill Number', and informing them to 'KEEP IT COOL'; they will call back as soon as it is cleared, and ready to take to customs. So easy, one learns the hard way.

There have been other hitches of course, but one does learn. All this has been fun, and part of a overall effort to bring in some *Auricula* from the UK that we only hear about. It would be a shame to go through life without enjoying them.

TAKING PLANTS FROM CANADA INTO THE STATES

Having in recent years made a number of trips to and from the USA visiting the Shows at APS Chapters, I am often asked about taking plants across the border. Some folks, mostly non-

Society members, are surprised that it can be done at all. Others are interested in learning about the procedure.

I am usually taking the plants South for entry in a Show, plus some for sale, and may carry upwards of 100 in pots. If they are all Exhibition plants to be returned to Canada, then the U.S. Authorities are normally less concerned, understanding that they will not remain in U.S.A. (Note they may be counted going each way!).

To enter the U.S. a *Phytosanitary Certificate* is required indicating plant health and freedom from disease. For this Certificate an inspection by Agriculture Canada is required. It can be obtained by taking all the plant material to Ste 103.620 Royal Avenue, New Westminster, B.C. V3L 5A8 (Tel. 666-2891). It is necessary to telephone first, or the Inspector may be out in the field on a more pressing call. There is no charge for this certificate. With large quantities (like from a Nursery) an Inspector will visit your premises by prior arrangements, again at no charge.

At the Border the U.S. Customs Officer will immediately pick up his ears when you mention you have plants. Do not be surprised if he gives you a little slip marked 'Plants in Dirt' to take inside the Custom House.

What then happens varies a little, and may depend on the rank or experience of the official. Some will take the top copy of the phytosanitary certificate (keep the other for it's for presentation to Canadian Authorities on return) and wish you a good trip. Usually the US Agriculture Inspector (Ag' Guy) will be called in to check the plants and give his or her blessing.

You may or may not be charged \$5.00 U.S. at some stage. The Custom folks are very helpful and usually startled and interested to see Show *Auricula* and unusual *Primulae* for the first time.

PLANTS FROM THE UNITED STATES INTO CANADA

With proper arrangements this can go very smoothly. Again, the Authorities, this time Canadian, show some pleasure at receiving correct documentation. For full coverage you will need:

1. The Bill of Sale (Receipt from Nursery, etc.)
2. An Import Permit
3. Phytosanitary Certificate.

Import permits can be obtained by writing to: Import Permit Office, Agriculture Canada, Plant Health Division, Permit Office, Ottawa, Canada K1A 0C6.

Request Application forms and allow several weeks for a reply to an application! One must name the specific plants intended for import: *Primula*, various species, etc. and whether as cuttings, bare root, or rooted in sterile material (which material needs previous approval) or soil. Also the Exporter has to be named.

This all implies an organized and planned expedition. The difficulty arises when one doesn't know what impulse buying, gifts and other surprises will occur. However, this permit is more necessary for commercial than private importation. The failure to have one (at times) has not been critical.

Essential though is that Phytosanitary Certificate. On Weekdays, plants can be inspected at the Washington State Agriculture Office, Meeker St., Kent, Washington. Take Exit 149 marked "Kent - Des Moines" from I-5 and go East, down the hill to Meeker St.

One should telephone at least a day before (206) 872- 6480. The charge is \$9.00 US. They are most helpful then.

There is also a Washington State Agriculture Office in Mount Vernon, Washington, (206) 336-9323. This office is located on the 3rd floor in the old Court House.

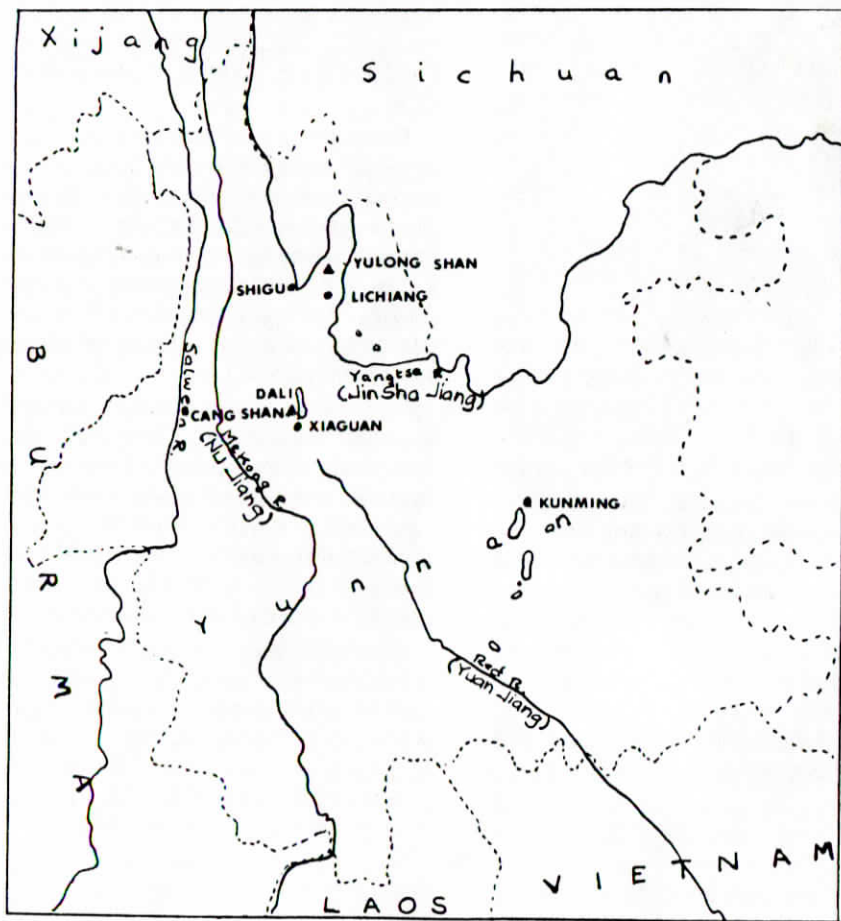
In Bellingham, Washington call John Wrapsir at (206) 676-6739. The office in Bellingham requests at least a two day notice before arriving with plants.

By special request from the U.S. nursery that you are buying plants from, Inspectors will visit and leave a Certificate with them. Be sure that sufficient time is given for the Nursery to

make these arrangement; a week to 10 days should suffice. The charge is \$18.00 US.

So much for our experiences from Canada. We do not have many Canadian members in the APS but hopefully these notes can help in moving plants across the border. It should also help Americans members in taking plants North into Canada, eliminating the nervousness (and illegality) of traveling with plants tucked in dirty socks, diapers, and tire wells.

* * * * *



Yunnan, China

PRIMULAS OF THE YULONG-SHAN

by David Palmer
Portland, Oregon

Having pored through several old books and articles, reading about the exploits of the early plant collectors, it was with luck that in the fall of 1988 I found myself following in the footsteps of such famous collectors as Joseph Rock, Frank Kingdon-Ward and George Forrest.

Along with five other colleagues we were in the province of Yunnan in southwestern China. The area we had come to explore was a relatively narrow, yet impressive peninsular of mountains known as the Yulong-shan in the northwest corner of the province. Set within a 100 mile loop of the Jiang Sha Chiang (better known as the Yangtze River), the 20 or so craggy limestone peaks rise to over 15,000 ft., with the highest being 18,900 ft. These peaks are punctuated by numerous glaciers and deep gorges. This area, where the Yangtze River separates from the Mekong and Salween, was once described by Forrest as one huge natural flower-garden.

The name Yulong-shan was originally given to describe the highest peak, although early explorers of the region often referred to the mountains simply as the Lichiang Range or the Lichiang Snow Range. The name Yulong-shan translated means the Jade Dragon Snow Mountain.

To the southwest of the range lies the town of Lichiang, a combination of old and new. The old part of the town is fortunately being preserved for

its value as a part of "old China". The narrow streets paved with cobblestones weave their way between wood-frame houses with tiled roofs, bundles of drying peppers hanging from the windows. A slow moving stream meanders along, with women washing their laundry on its banks, and numerous little shops on either side house everything from vegetable seeds to acupuncture. In the middle of the town a farmer's market is in progress where one gets a chance to see the wonderful array of vegetables grown in this part of the country.

Driving north from Lichiang, we crossed a broad flat plain between the mountains. This was September, the monsoon season had just finished but there was still some color on the plain. Gentians and cyananthus lay around in pads, the bright blue of *Cynoglossum amabile* was dotted here and there, and a relative of the scabious, *Pterocephalus hookeri*, was just coming into flower its white pincushion flowers studded with black anthers.

Although many flowers had long since finished, as June and July is the peak flowering period in this region, it still looked promising that we would get to see plenty of things in bloom. A Sino-British expedition in June and July of 1987 had covered much of the same area we had planned to explore. Fortunately we had been able to obtain lists of the plants they saw to help us on our identifications, and also see

what we were missing in flower. From the lists, we could already see that the ditches alongside the road had been blooming earlier with *Primula poissonii* and the occasional *Primula beesiana*.

Down here on the plain they had since dried up, but a couple of hundred feet higher we found rosettes of leaves that were still visible with tiers of seed pods. These were growing around the fringes of a small lake whose waters were used by the village below. On the lower side of the lake some water seeped down a gentle slope making the ground very squelchy. The primulas abounded in the wet ground, thinning out as the area got drier. They shared this habitat with other wet loving plants, *Ligularia*, *Parnassia* and *Gentiana*, as well as some plants that looked out of place with their feet wet, *Buddleia fallowiana* and *Hypericum forrestii*.

At this elevation of around 9,000 ft., the weather during much of the peak flowering season is wet and warm, winters are relatively cool and dry. Higher up the mountain peaks, snow is a usual occurrence covering everything with its white mantle. This time of the year, the weather was ideal with the temperatures in the high 60's to low 70's and mostly sunny with clouds occasionally hiding much of the tops of the peaks.

Following the road up to about 9,500 ft., we made camp at the Forestry Station on the banks of the Bei-Shui River, meaning "white water", the water was very clear and cold, being fed by glaciers. Quite a change from another camp a few days before overlooking the mighty Yangtse, where the torrential waters were a muddy brown from the soil it constantly washes away from the banks.

Here at the Forestry Station the government had set up a tree production program to reforest many of the areas that have been logged further north. Our first trek out from this camp gave

us some evidence of the extent of the tree felling that occurs. Large mature trees of many of the hardwoods of this area were not visible alongside the road. Occasionally a young multitemped tree of *Acer forrestii* would be seen that had grown up from the stump. On some hillsides the trees were scant, the white tops of the stumps would easily be picked out. There didn't appear to be any controlled logging here, more a case of the villagers cutting down trees for firewood. It was not only sad for the loss of the trees, but it changed the whole habitat underneath, as much of the shade was gone. The gentle trickle of a few streams could be heard flowing down the hillside. Following some of the little streams upwards, we came to a clearing where the ground was quite boggy, again we came across large areas of primulas that had been blooming several months before, possibly *P. poissonii* and *P. bulleyana*, but no flowers left to positively identify. Sharing this wet area were again *Ligularia* and various gentians including *G. sino-ornata*, plus a tallish form of *Leontopodium*, very different from the European Edelweiss, and a small leaved *Rhododendron* that looked like a member of the Lapponicum series.

Coming back towards camp, large tufts of plants were seen growing alongside the road in the banks and on the rocks. On closer inspection these were re identified as *Primula forrestii*. The large ovate elliptic leaves were beginning to turn to an autumnal yellow, but what was very interesting about this species is the way the stem of the plant was almost woody at the base so that large plants looked almost shrubby. Flowering back in June, the flowers are a deep yellow with an orange eye, and have a wonderful fragrance. This species was seen several times in this area, nearly always growing at an angle on banks and rocks, often under the shade



P. forrestii

sketch by Doretta Klaber

of shrubs or taller plants. This plant was discovered by George Forrest back in 1906, but has never really stayed very long in cultivation. New seed from this area has since been flowered in cultivation, we shall see how long it remains with us.

We awoke the next morning to a glorious sunrise with the snow-capped peaks brilliantly clear and shining in the early morning light. With the day starting off so well we set off on our next trek heading in towards the source of the Bei-shui. On the flat banks of the river, stalks of seed pods were seen of a species akin to *P. poissonii* again with its shiny leaves. This time it was growing with *Berberis*, *Cotoneaster* and *Potentilla arbuscula*. A little further along the trail, large rock outcrops became apparent as a habitat for a

whole myriad of tiny plants. Although many were not as green and lush as they were during the rainy season, since some were starting to go dormant, it was still possible to identify what they were. The long strap shaped leaves of *Pleiones* were very evident, growing out of plump pseudobulbs that seemed to be precariously perched on the rocks, intermingled were plants of *Tofieldia* resembling tiny miniature irises. What really caught our eyes were a few patches, the biggest about twelve inches across that seemed to contain so many plants packed tightly together that it was difficult to count how many. The longest leaves were about 3/4" in length, more or less oblanceolate with numerous incised teeth along the edges. On the backs was still a little pale yellow farina. No flowers were to be seen, but there were a few tiny flower stalks remaining, each topped with a single seed capsule. What was this gem? We checked over the plant lists. Was this *Primula bella*, one of those species that you read about in the literature, but rarely see in cultivation? It seemed to fit the general description of the species, and should be in this area as Forrest introduced it from this range back in 1908. The literature also lists five subspecies, that are identified by some minor variations from the species.

We were to see *P. bella* in a few locations here, and again down on the Lichiang plain, between 9,000 and 10,000 ft. It was always growing on lime stone rocks, where it congregated together to form pads that often spread themselves beside cracks or crevices where the water could seep along. Lines of young seedlings would often be seen trailing away from the parents where the moisture retentive moss provided an excellent seed bed. Sometimes they seemed to be in the sun, but mostly a little light shade was preferred.

Another day's trek took us up into the mountains at around 12,500 ft. For some of us the going was slow with the air getting a little thin at this elevation. It was amusing to see three Chinese youths carrying baskets on their backs pass us on the trail at the beginning, and by the time we reached our campsite they had already done their collecting and were heading down. Curious to know what they were collecting we asked them what they had been after, wild orchids, that will be dried and ground up for herbal medicine. The Chinese view on plants is very different from our Western outlook, to them each plant is looked at for its medicinal properties.

We made camp that evening on a slope that looked out across the Li Chiang plain with the lights of Lichiang in the distance. There was just time to do a little botanizing before the light was gone. At this elevation many things were shorter than normally seen, *Paeonia delavayi* grew to about 18", aconitums and anemones were abundant, but what was most dominant was a nodding blue *Allium*, probably *A. beesianum*. The occasional *Rosa* sp. was in full fruit, bedecked with large bottle shaped orange/red hips, and the blue/gray mounds of a shrubby *Lonicera* could just be made out in the dimming light.

Light rain began as we settled down for the night. We awoke the next morning to find that the rain was still coming down as well as the clouds, obliterating our view of the plain, and shrouding the mountain around us. We had intended to climb a little higher to get amongst the rocks and the true alpine plants. As the weather seemed to have no intention of clearing up, we reluctantly decided to break camp and head down rather than risk life and limb on wet rocks with very limited visibility. We found out later that in that same area and a few hundred feet

higher we would have come across some exquisite colored *Corydalis* scattered through the rocks as well as *Primula secundiflora*, *P. pinnatifida*, *P. pseudosikkimensis*, *P. leucochnoa*, *P. dryadifolia* and *P. sonchifolia* - so close yet so far! Returning through the meadows below where we had camped, we eagerly peered back through the mists in the hope that it was clearing, but to no avail.

Judging by what we had seen and what we had missed flowering, you could understand what drove those early collectors to go back again and again in search of new plants for our gardens. I refer back to an excerpt from a letter by George Forrest after his last expedition "... of seed such abundance, that I scarcely know where to commence, nearly everything I wished for, and that means a lot. Primulas in profusion, seed of some of them as much as 3-5 lb., the same with *Meconopsis*, *Nomocharis*, *Lilium*, as well as bulbs of the latter. When all are dealt with and packed I expect to have nearly if not more than two mule-loads of good clean seed, representing some 400-500 species, and a mule-load means 130-150 lb. ... If all goes well I shall have made a rather glorious and satisfactory finish to all my past years of labour".

* * *

NEWS and NOTES II

by G. K. Fenderson
South Acworth, New Hampshire

Since the first article in this series (see Primroses, Vol. 47 No. 3) the following items have come to my attention:

Primula mistassinica var. *intercedens* has been reduced to the status of a forma: Cayouette, J. *Primula mistassinica* f. *intercedens* comb. nov. Naturalistic Canad. 111: 444. 1984.

A double form has also been described: Cayouette, J. *Primula mistassinica* f. *plena* Naturalistic Canad. 111: 444. 1984

A new *Primula* species of the section **Obconicolisteri** has been described from Thailand by T. Yamazaki.

P. intanoensis Yamazaki sp. nov. Journ. Jap. Bot. 63(6): 211- 213. 1988. The plant is described as a very close ally of *P. obconica* Hance from China but differs from it by the white smaller corolla and the corolla being 1.3 times as long as the more triangular calyx lobes. It was found growing on moist humus rich ground in a mossy forest at elevations from 1900 to 2590 meters. The type (*Tagawa, Iwatski & Fukuoka 2863*) was collected on Dec. 19, 1956 and is at Tokyo University.

It is a historic coincidence that the twentieth century is about to close as it began; with the appearance of a major monograph on *Primula*. The monograph of F. Pax and R. Knuth appeared in 1905 (Das Pflanzenreich IV: 237 Primulaceae) and 1990 has seen the publication of the Chinese

language edition of Vol. 59(2) **Primulaceae** of the monumental **Flora Reipublicae Popularis Sinicae** edited by F.W. Chen and C.M. Hu. It is very valuable to finally have an assessment by a distinguished native botanist of the exceedingly rich *Primula* flora of China.

The appearance of C.M. Hu's volume 59(2) is likely the last of the major descriptive monographs on *Primula*. It completes the third of a trio now formed by Smith, Fletcher, and Forrest's monographs of the 1940's and A.A. Fedorov's contributions to the Flora SSSR in 1952. In combination these three works culminate our understanding of the genus *Primula* in the late 20th century.

Hopefully the next century will see botanists with the skills and dedication necessary put what has been so carefully described in the recent past into global and evolutionary perspective. What has been recorded to date is the extent of variation within the genus. As much as we value this variation for horticultural purposes we should remember that this same variation is also an immensely rich, and in *Primula*, mostly unexplored field which can be used to help us understand the patterns, origins, mechanisms, and maintenance of variation in other living organisms.

The following is a synopsis of changes in the genus *Primula* as treated by C.M. Hu in the **Flora Reipublicae Popularis Sinicae** Vol. 59(2). New Taxa are described in the addenda of that

volume on pages 288-295. In the following summary distinguishing features of these new taxa are based on my hurried and inexperienced translation of the latin are provided as a matter of convenience to the general reader until the appearance of the English language version. For accuracy in these or other matters of nomenclature or synonymy the original text should be always consulted. The herbarium acronyms CDBI, IBSC, KUN and PE refer to the herbaria of botanical institutions at the cities of Chengdu, Guangzhou, Kunming, and Beijing (Peking) respectively. Any inaccuracies or omissions are my responsibility and should not reflect on the work of the original author.

section Monocarpicae:

P. divaricata [F.W.] Chen & C.M. Hu (new species)

(Synonym: *P. reflexa* [F.W.] Chen & C.M. H in Index F1. Yunnanensis 2: 1510. 1984)

It differs from all species of the section **Monocarpicae** by the scapes carrying at their tips small pedicellate leaves and bracts. It was collected in 1940 in Yunnan at elevations of 1800-2700 meters growing along roadsides and on rock surfaces. The holotype (*M.K. Li 3439*) is at KUN.

P. epilithica [F.W.] Chen & C.M. Hu (new species)

The species is allied to ***P. duclouxii*** Petitm. but it differs from the latter in being densely rusty-pilose plants and without farina. The calyx lobes are also broader. The holotype (*M.K. Li 1199*) was collected in 1956 in Yunnan growing at elevations of 2300-2500 meters on moist rock surfaces and is preserved at KUN.

P. forbesii Franchet

subsp. *androsacea* (Pax) W.W. Smith et Forrest (now included within the type subsp.)

P. hypoleuca Hand.-Mazz. (restored as a valid species)

P. interjacens Chen

var. *interjacens*

var. *epilosa* C.M. Hu (new variety)

This variety differs from the type in that the plants are glabrous and the calyxes are yellow-farinoso. The holotype (*M.K. Li 2904*) was collected in 1940 growing on rock surfaces at 2200 meters elevation and is preserved at IBSC; an isotype is at KUN.

P. lithophila [F.W.] Chen & C.M. Hu (new species)

The species has features of foliage and indumentum similar to that of ***P. cavaleriei*** Petitm. but differs from that species by its narrowly campanulate calyx which is 7-10 mm long, slightly shorter than the corolla tube and divided for a third of its length. It also differs in the cylindrical seed capsule. The holotype (*Bijie Expedition 1624*) was collected in 1959 at an unspecified elevation in Guizhou growing in valleys on moist rocks. It is preserved at PE.

P. petrocallis [F.W.] Chen & C.M. Hu (new species)

The holotype (*M.K. Li 2791*) was collected in Yunnan at 2200 meters elevation growing on rock surfaces. Collected in 1940, it is preserved at IBSC, there is an isotype at KUN.

This species is near ***P. duclouxii*** Petitm. but differs from it in that the exterior of the calyx is densely pubescent and is cut to the middle into triangular lobes.

var. *glabrata* C.M. Hu (new variety)

The holotype (*M.K. Li 2987*) of the variety was also collected growing on rock surfaces at the same elevation as the type. Also collected in 1940 from the same area of Yunnan, it is preserved at IBSC and an isotype is at KUN.

This variety differs from the type in that the plants are completely glabrous and carry a longer multi-flowered inflorescence with 2-3 superimposed umbells.

var. *petrocallis*

section Obconicolisteri:

P. obconica Hance

var. *werringtonensis* (Forrest) W.W. Smith et Fletcher (now included within the type variety)

subsp. *begoniiformis* (Petitm.) W.W. Smith et Forrest (raised from a synonym of *P. obconica* Hance var. *rotundifolia* to the rank of subspecies)

subsp. *nigroglandulosa* (W.W. Smith et Fletcher) C.M. Hu (raised from rank of variety to subspecies)

subsp. *parva* (Balfour f.) W.W. Smith & Forrest

P. parva Balfour f. (reduced to rank of subspecies of ***P. obconica*** Hance)

section Cortusoides:

P. baokongensis Chen & C.M. Hu (reduced to a synonym of ***P. neurocalyx*** Franchet)

P. eucyclia W.W. Smith et Forrest (reduced to a subspecies of ***P. vaginata*** Watt)

P. neurocalyx Franchet (restored as a species from synonymy of ***P. malvacea*** Franchet in part)

P. normaniana Ward (reduced to a subspecies of ***P. vaginata*** Watt)

P. pauliana W.W. Smith & Forrest

var. *huiliensis* [F.W.] Chen & C.M. Hu (new variety)

This variety differs from the type in having rosy-purple flowers rather than pale yellow flowers. The holotype (*Sichuan Vegetation [sic] Expedition 12095*) collected from Sichuan in 1976 at 2500 meters elevation growing in forests is at CDBI; an isotype is at IBSC.

var. *pauliana*

P. sinomollis Balfour f. et Forrest (restored as a species from a subspecies of ***P. cinerascens*** Franchet)

P. vaginata Watt

subsp. *eucyclia* (W.W. Smith & Forrest) [F.W.] Chen & C.M. Hu (new subsp. reduced from the rank of species)

subsp. *normaniana* (Kingdom-Ward) [F.W.] Chen & C.M. Hu (new subsp. reduced from the rank of species)

subsp. *vaginata*

section Auganthus:

P. filchnerae Knuth (moved from section **Pinnatae** to section **Auganthus**)

section Rannculoides

[F.W.] Chen & C.M. Hu (new section):

Type species: ***P. cicutariifolia*** Pax

P. cicutariifolia Pax

P. erodioides Schlechter (reduced to a synonym of ***P. cicutariifolia*** Pax)

P. merrilliana Schlechter

P. ranunculoides Chen (reduced to a synonym of ***P. cicutariifolia*** Pax)

section Carolinella:

P. huana W.W. Smith (reduced to a synonym of ***P. chapaensis*** Gagnepain)

P. kweichouensis W.W. Smith

var. *kweichouensis*

var. *venulosa* [F.W.] Chen & C.M. Hu (new variety)

This variety differs from the type in having densely pilose lower leaf surfaces, leaf margins ciliate, and the narrow petiole once or twice as long as the blades. The holotype (*P.Q. Tsoong 486*) is at PE. It was collected in 1928 growing on cliffs in Guizhou

P. wangii [F.W.] Chen & C.M. Hu (new species)

The species is allied to ***P. kwangtungensis*** W.W. Smith, but it differs in

the leaves with moderately long petioles with the blades for the most part cordate at the bases. The calyxes are divided to the midpoint and the cylindrical capsule is longer than the calyx. The holotype (C.W. Wang & Y. Liu 87568) was collected growing on rocky hills in Yunnan on March 7, 1940 and is preserved at IBSC, and an isotype is at KUN.

section Bullatae:

P. bullata Franchet

var. *rufa* (Balfour f.) W.W. Smith et Fletcher (reduced to a synonym of *P. forrestii* Balfour f.)

P. redolens Balfour f. & Kingdom-Ward (Reduced to a synonym of *P. forrestii* Balfour f.)

P. henrici Bureau et Franchet (reduced to a synonym of *P. bracteata* Franchet)

P. dubernardiana Forrest (reduced to a synonym of *P. bracteata* Franchet)

section Petiolares:

P. taliensis Forrest

subsp. *procera* C. M. Hu (new subsp.)

This differs from subsp. *taliensis* by its greater stature, and in that the lower surfaces of the leaves and the calyxes are yellow farinose. The holotype (Nan-Shiu-Bei-Diao Exped. 8381) was collected at 3300 m in Yunnan on Bilo Snow Mountain on November 5, 1960 and is preserved at KUN.

subsp. *taliensis*

P. boothii Craib (reduced to a synonym of *P. bracteosa* Craib)

P. prevernalis Chen & C.M. Hu (new species)

The species is very similar to *P. irregularis* Craib from Sikkim but it differs from it in that the calyxes are divided for two-thirds of their length into acuminate lobes, and in the insertion of the stamens. It was collected in Yunnan growing in mixed forests and

Abies forests at 3200 m elevation. The holotype (C.W. Wang 89751) is at KUN.

P. moupinensis Franchet

subsp. *barkamensis* C.M. Hu (new subsp.)

This differs from subsp. *moupinensis* in having larger flowers to 2.5 cm in diameter and the inner leaves before the fruiting stage are rotundate or slightly cordate with the petioles up to equal in length to the blades. The holotype (X. Li 70127) at IBSC was collected at an elevation of 2740-3400 m growing along streamsides in Yunnan.

subsp. *moupinensis*

P. wenshanensis [F.W.] Chen & C.M. Hu (new species)

The species is akin to *P. peteloti* W.W. Smith from which it differs by having the leaf bases obtuse or subrotundate, and with poculiform calyxes only 5-6 mm long, and barely divided to the mid-point. It was collected in Yunnana at 2000 m elevation growing in mixed forests. The holotype (K.M. Feng 22284) was collected on May 2, 1962 and is at KUN.

P. strumosa Balf. f. et Cooper (restored from a subspecies of *P. calderiana* Balf. f. & Cooper)

subsp. *strumosa*

subsp. *tenuipes* C.M. Hu (new subsp.)

This differs from var. *strumosa* in the oblong or ovate-oblongate leaves with the bases obtuse or cordate. It was collected in Xizang at the fringes of an *Abies* forest at elevations of 3800 m. The holotype (Qinghai-Xizang Exped. 5688) was gathered on June 10, 1975 and is at PE.

(to be continued in the next issue of *Primroses* - Vol. 49, Winter 1991)

DENOTING DENTICULATA

by Donald D. Keefe
Redmond, Washington

Famous German Gardener and plant breeder George Arends, now deceased, like Florence Bellis, is one of the 'Titans' in the world of *Primula* propagation and hybridizing. Because of his exciting developments in improving *Primula denticulata*, it seems fitting that excerpts from his book, 'My Life As Gardener and Plant Breeder' should be included in this article.

"I received in 1908 from the world renowned nursery firm in St. Petersburg (Leningrad), Regel and Kesselring, *P. auriculata*, which claims its home in the highlands of Persia (Iran). Belonging to the Capitatae (now Oreophlomis) section, it resembles a strong growing denticulata, flowering however, four weeks later. I thought it possible to prolong the flowering season of *P. denticulata*, so, pollinating both, I had good results. What I sold as "denticulata late flowering hybrids" bloomed two weeks later. The market did not want my late capitatae (Capitatae) primulas. I discontinued their culture.

P. cashmeriana and *P. denticulata* are classified as one species by many botanists, ranking the second one as a variety of the foregoing. I differ. *P. cashmeriana* has the underside of the leaves covered with a yellow farina, also the peduncle, and varies so much in its growth and peculiarities compared with *P. denticulata* that I call the

second one a good species, despite their close relationship and ease of hybridizing traits.

P. cashmeriana possesses in our climate a very disagreeable quality. The flower heads develop in the fall enough only to freeze during the winter. Rot sets in and destroys the inflorescences so no flowers can be had in the spring. The plants recover, either from the crown or roots themselves, but one has to wait another year for either no flowers at all or then only deformed ones. *P. denticulata*, on the other hand, terminates the growth cycle in the fall and forms fat, round winter buds. No cold weather of any kind can do them the slightest harm. Very early I began to improve this species by a most rigorous selection of the largest flowering types, pollinating all very carefully, attaining the desired results, which enable me in 1905 to introduce to the trade my *Primula denticulata* grandiflora "Ronsdorfer" hybrids. Hybrids they were, as I made full use also of various *P. cashmeriana* forms to get a richer variety of colours. My first object was the retaining of the strong healthy growth of *P. denticulata*, and the large individual florets of *P. cashmeriana*.

During the following long years the breeding work continued. The near relative, *P. purpurea* (*P. macrophylla*) section 'Crystallophlomis' which I received in 1908 from Regel and Kesselring, was included with the aim in mind to obtain more colour variations

which would include a range of clear rose and dark violet shades. I tried the infusion with *P. rosea* (section *Oreophlomis*) as a parent without getting results. Continuing hand pollination and selection, I finally succeeded in giving to the public in 1925 pure, clear colours with the varieties "delicata" and "Rosamunde," and soon after "rosea" which from then on were propagated vegetatively. In 1928 the dark violet forms *atroviolacea* and *violetta* appeared, and in 1932 the most vigorous growing, largest flowering of all my *denticulata* hybrids "Juno" with beautiful light lilac flowers, made its debut. The hybridizing work continues. The colours improve and the next years shall prove that my labors will not have been in vain.

Before concluding my notes on *Primula denticulata*, I may mention the crossing of *P. rosea* (sect. *Oreophlomis*) and *P. denticulata* in Saalfeld (Germany) by Suppitz. I did not care for the light lilac-rose flowers. Nevertheless, I was convinced this was a true hybrid between two species because they yielded neither good pollen nor seeds.

The hybrid emanating from *P. denticulata* x *P. frondosa* was of little importance to gardeners. It was a weak grower and disappeared but, from a scientific point of view, it must be classified as a most interesting hybrid between two true species."

MORE NOTES ON CASHMERIANA

George Arends belief that *P. cashmeriana* is a good species was disagreed with by Florence Bellis, Walter C. Blasdale, Farrer, and other experts. Both appeared to have valid points. The section *denticulata* species, etc., listed in G. K. Fendersons book, 'A Synoptic Guide to the Genus *Primula*', does not

include *P. cashmeriana* except as a synonym for *P. denticulata*. Nevertheless, I'd like to know whether Arends' viewpoints regarding this matter were taken into consideration by Bellis and the other 'experts', concerning the possibility of 'cashmeriana' being a separate species. *P. denticulata* (variety *cashmeriana*) seed was purchased from P. Kohli & Co., Kashmir, India by the APS to sell in conjunction with the 1990 seed exchange.

INQUISITIVE HYBRIDIZERS

Plant breeders interested in hybridizing between species might consider the possibility of crossing *P. denticulata* with *P. capitata* and *P. macrophylla* to see if they can produce a hybrid *denticulata* that can bloom a month later and or produce flowers in shades of dark violet. Extensive propagation of such hybrids would probably require use of the root cutting method.

DENTICULATA FLOWER COLORS

Until the spring of 1989, we had mostly *denticulata* with lavender blooms, plus a few with pink flowers. Since that time, thanks to the seed exchange and plant swaps, we have a nice collection of many red, pink, white, purple, and lavender flowered plants. However, when I realized that there are true blue, true violet, and many dark shades of *denticulata* flowers, plus *grandiflora* types, I soon came down with that dreaded malady, "primula fever". My nose twitched, my ears wiggled, and my heart palpitated as I trembled with excitement of starting on another *primula* search.

To avoid controversies regarding the colors of *denticulata* blooms, I will usually avoid commenting on the common garden types of *denticulata*, with

flowers in pastel shades, e.g., lavender, light lilac, mauve, powder blue, etc.

I began researching various publications containing data on *denticulata*, looking for evidence of true blue and violet flowered varieties in medium or darker colors, and for larger (*grandiflora*) flower heads. I also started looking for places where such varieties might be purchased. Here are my findings:

Blue Flowered *Denticulata* Plants

Thompson & Morgan's 1990 retail seed catalog lists a *denticulata* seed mix that includes seed for 'deep blue' flowers.

In 1957, Alice Hills Baylor, Sky Hook Farm, Vermont, listed three varieties of blue flowered *denticulata* edging the terraces, i.e., light, medium, and deep shades of blue.

The APS *Primula* Dictionary, p.34-35 states "The finest blue (*denticulata*) forms have been raised in conditions favored by rhododendrons."

Violet Flowered *Denticulata* Plants

The Academy of Science, Kaunas, Lithuania, donated *P. denticulata* 'atroviolacea' (dark violet) flower seeds for the last APS seed exchange. My five plants grown from this seed won't bloom until spring.

Thompson & Morgan's 1989 retail seed catalog listed seed for a "cachemeriana" (*denticulata*) with "Large violet-purple yellow-eyed flower head. Stronger and more robust plant than the species.

T.C. Clare stated "There is . . . a very good violet form:

Taylor's Violet, which is probably a selection from the old Cambria strain."

T.C. Mansfield's book on Alpines also mentions blue flowered *denticulatas*.

Denticulata Grandiflora Plants

The Botanical Garden, Tallinn, Estonia, donated *P. denticulata* 'grandiflora' seeds for the last APS seed exchange. I believe that we have plants grown



P. denticulata

photo by Larry Bailey

from this seed. However, I dislodged the plant markers when raking up maple leaves, so will have to see the plants in bloom next spring to identify them.

George Arends advised in his book that his "*Primula denticulata* grandiflora 'Ronsdorfer' hybrids," were introduced in 1905. And in 1932, he grew "Juno", which was the largest flowering of all of his hybrid 'denticulata' plants. By the way, seed for the 'Ronsdorfer' hybrid seed was still being sold in Jellito's (German) 1989 wholesale seed catalog.

T.C. Mansfield, in his book on 'Alpines', etc., 1945, states "*P. denticulata* Hay's Variety, has flowers which tend to violet, and is a really outstanding variety." A color photo of the plant, alongside of other denticulata, shows that the flower heads of the Hay's variety, are larger than those of the other plants. I would say that the plant is definitely a 'grandiflora'.

Denticulata Plants with Dark Colored Flowers

Jellito's (German) wholesale seed catalog (1989), lists seed for *P. denticulata* 'Dunkle Farben', which I believe means 'denticulata with dark colored flowers'. Hopefully, seeds for the dark colored blue, purple, red and violet flowered denticulatas are included!

MORE NOTES ON DENTICULATA

Section Denticulata

I believe the most current listing of Section Denticulata primulas is that contained in G.K. Fenderson's book (1986). He lists the following species, subspecies, and varieties:

- " *P. atrodentata*
- P. denticulata*
- subsp. *alta*
- subsp. *denticulata*
- P. denticuloides*
- P. erosa*

- P. erythrocarpa*
- P. laxiuscula*
- P. pseudodenticulata*
- var. *monticola*
- var. *pseudodenticulata* "

Except for the *P. denticulata*, and the slender dainty *P. erosa* listed in the Far North Gardens 1989-90 seed catalog, I know of no Section denticulata species plant or seed that are presently being sold in the United States. However, *P. atrodentata* and *P. erythrocarpa* were being grown in Canada and/or the United States many years ago.

Propagation of *P. denticulata*

Denticulatas are one of the easiest plants for me to grow from seed. This sturdy plant is one of the first to begin spring growth. You can divide denticulatas either before or after they bloom. Whether the seeds are fresh or old seems to make no difference. We started many of them last November and December in small flats, inside of our cool greenhouse or outside on the front porch. Many started blooming by mid-summer. I'm sure they'd sprout just as well planted outside in the spring or fall, but their bloom time would be delayed. Quite a few denticulata seedlings have popped up in our garden, as if from nowhere, usually in spots where no denticulatas were growing before.

Beth Tait of Primrose Acres, near Seattle, had this to say. "... *P. denticulata* was another plant that we could not keep. Until cutting leaves in the fall, they always rotted in the crown. Now I always pull the leaves up in one hand and using the lawn shears I cut the leaves within two inches of the crown. Do not try to pull the leaves off as they are too long (twelve to fourteen inches long), you tear the crown of the plant, some times doing severe damage to the plant."

"If you do lose a *P. denticulata* by crown rot, the center usually turns to a soft, mushy substance. This can be removed from the crown and (the hole) filled with dirt, and sometimes new plants will come (up) making dozens of new transplants. The old roots may be dug and cut into two to three inch pieces, then these planted into new soil will start new plants. Sometime you lose a choice color and this is a way to get it back."

"I find transplanting *P. denticulata* in the spring is best, they seem to grow better and usually the plants are quite large by fall . . ."

Here's what T.C. Clare of Ascot, England, and to say about the propagation of denticulata. "... Primulas are generally propagated from seed; but not *P. denticulata*, if you want a repetition of the parent's colour. It is a most variable plant, and a pod of seed will give a very pleasant mixture of flowers, unless you have taken the seed from a group of the true species. Luckily, if on get a nice form which one wishes to increase in a hurry there is a very simple method used by all nurserymen - here at any rate. Root cuttings taken in the early spring when the plant is starting into active growth, is a very simple process. One lifts a food plant carefully; removed about half its best thong roots, and with a really sharp knife, cuts them into roughly inch lengths. These are then laid horizontally in the propagating case, or box of sand, as the case may be; and treated like any other cutting. Each piece of root may produce several young plants, which if grown well, will produce a small flower in the next spring . . ."

* * *

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CULTIVATION OF PRIMULA BELLA THE BEAUTIFUL ONE

by David Palmer
Portland, Oregon

Seed of this species was collected in October, 1988. Having been stored in a sealed container in a refrigerator over the winter, it was sowed in early February, 1989. The compost used was comprised of:

- 1 part Fisons Sunshine Mix No. 1
- 2 parts pumice
- 1 part perlite
- 1 part coarse sand
- + dolomite lime (3/4 oz. per 8 gallons)

At the time, I was using polystyrene cups for sowing all my seeds in, because they are sterile and all information can be written on the side. In the effort to help the environment, plus they fell over so easily, I have since switched to 2" square bands with better results.

After seeding, the pot was topped with 1/4" of sifted pumice and put out in a covered frame. This was occasionally opened to the weather for water-



P. bella growing in 3" pot

photo by Jay Lunn

ing. Within a couple of months about 6 seedlings germinated. These grew slowly at first, but when about 1/2" high the whole batch was potted on with very little disturbance into a long 3" clay pot.

Trying to keep them as cool as possible during the summer they produced some healthy rosettes. They started to go dormant around late September, so were kept on the dry side without the compost drying out completely over winter. A careful watch was kept for any marauding slugs.

Nothing appeared to be happening in the pot until late March, 1990, when a little sign of life appeared with the swelling of the dormant buds. Growth was steady until mid-April when a flower bud showed its presence. After several weeks of growth it opened to a full 1/2 - 3/4" across, of a soft pink-purple color.

Unfortunately no seed was set, and presently the rosettes have gone dormant. We can but wait to see what 1991 will bring.

* * *

NOMINATIONS FOR OFFICERS 1991

The Nominating Committee of the American Primrose Society has proposed the following slate of Officers for 1991: President**Cyrus Happy III**
Vice President**Dr. John Kerridge**
Treasurer**Jay Lunn**
Secretary**Ann Lunn**
Board Member No. 1**Rosetta Jones**
Board Member No. 2**Dorothy Springer**

Ballots will be mailed to members along with the Seed Exchange List. Ballots should be mailed to the APS Secretary in time for the Annual National Show and Meeting in April.

CRYUS (CY) HAPPY III - A Life member of the American Primrose Society, Mr. Happy has been associated with the Society from almost its beginning in 1940. He is a past President of the APS, was the Editor of the Quarterly 'Primroses' for many years, and very active in the Tacoma Chapter. An avid photographer, Cy has supplied many photographs for the Quarterly and is a noted speaker on Primula. He has received many awards for his hybridizing efforts and collection of older, reliable primroses.

DR. JOHN KERRIDGE - A Physician in Vancouver, Canada and owner of Saltspring Primroses, Dr. Kerridge has been active in the American Primrose Society for many years. An enthusiastic grower and hybridizer of Gold Lace Polyanthus, Cowichans, and Exhibition Auricula, John has taken many top honors in both local and national APS shows. Dr. Kerridge is very well known in the Vancouver area for his articles and speaking engagements on Primulas.

ANN and JAY LUNN - A husband and wife team, both Ann and Jay have been active members of the American Primrose Society, the Berry Botanical Garden in Portland, Oregon, and the American Rock Garden Society for many years. Ann, a past Secretary of the APS, has served on the Board of Directors of the Berry Garden and is presently teaching Horticultural Sciences at Portland Community College. Jay, recently retired from the U.S. Forest Service is an avid photographer and native American Primula enthusiast. Ann and Jay have been recognized for their horticulture abilities in growing rare and unusual Primula species.

ROSETTA JONES - Rosetta has been an active member of the American Primrose Society, the Washington State Chapter and the Tacoma Chapter since 1953. In 1970 she determined she was going to produce a good double primrose with strong stems.

These remarkable hybridizing efforts have received world acclaim since they were first exhibited in 1976. Continuing to produce an ever increasing varieties of colors, Rosetta's doubles can always be counted on to receive the top awards in shows. Rosetta Jones' skill and contributions as a member of the Board of Directors has been recognized by the American Primrose Society for many years.

DOROTHY SPRINGER - Has had an interest in Primroses since, as a child, she used to slice her mother's Quaker Bonnets to see how many plants she could obtain. Dorothy, a past American Primrose Society's Board Member, served many years as Editor of 'Primroses', as well as other publications. She is very active in the Tacoma Chapter, a APS Show Judge and a member of several Garden Societies. Dorothy is a very enthusiastic collector and hybridizer of Julianas.

WINTER STUDY WEEKEND FOR 1991

The Vancouver Island Rock and Alpine Garden Society will be hosting the 16th annual Western Winter Study Weekend on March 1st, 2nd & 3rd, 1991, at the Empress Hotel in Victoria, Canada.

"Alpines at Home" will be this year's theme featuring speakers on a variety of topics for growing rock garden plants in the ordinary urban garden; including one on the cultivation of the rarer primulas. Attendees can purchase plants and books, and visit over 20 selected Victoria gardens.

If the fees for this event are mailed before January 1, 1990, the cost will be \$66 (US Dollars) or \$75 (Canadian Dollars) for attending the Convention. If mailed after the first of January the cost will be \$77 (US) or \$85 (C). An additional, optional cost for the Banquet on Saturday evening, the 3rd of March, will be \$25 (US) or \$27 (C).

Additional information and Registration Forms are available from the Registrar, Claire Hughes, 2901 Colquitz Avenue, Victoria, V9A 2M2; telephone (604) 388-6594.

PRIMULA WALTONII

by Judith I. Jones
Seattle, Washington

Primula waltonii is an extremely high alpine which grows in damp soil on hillsides above Lhasa, also in damp alpine meadows and on the edges of small streams of S.E. Tibet at an elevation of 13,000 to 18,000 feet.

It is a deciduous perennial with a short stout rootstock and a tuft of non-downy or efarinose leaves 3 1/2 - 12" that are oblanceolate. The membranous rugose blades are rounded at apex and cuneate at the base with raggedly sharp or round tooth leaf margins. These saw-like indentations look like the gnawing of insects to one author.

The flower scape is more or less yellowish from a powdering of mealy farina and supports a few to many flowered umbel. The color is described as being from a dull violet to bright pink, rich violet, deep crimson-purple, etc. In actuality, it is most often a sombre violet-purple reminiscent of port wine (watered down perhaps?) and only becomes the glowing wine or ruby of the catalogues when illuminated. The corolla has broadly heart-shaped slightly notched lobes. Both pin-eyed and thrum-eyed forms occur and while you're looking in there you will note a downy throat of white or yellowish farina, except at the very center where there is a rosy eye.

P. waltonii is reputed to be the most difficult of the Section Sikkimensis. It requires a rich compost, in which there is a high portion of humus, though drainage must be good as it likes a comparatively dry run during dor-

mancy. It is suggested that a suitable site would be near a tree trunk or the roots of other shrubs which would compete for any excessive moisture.

Experience has shown that *P. waltonii* is rather difficult to transplant at the seedling stage. Very thin sowing is recommended, and then allowing the seedlings to remain in the seed flats until they are in danger of crowding (that remark seemed more definitive than another author's vague referral to "some growth"). Thereafter, they should be potted up singly in small (thumb) pots from which they may be transferred to the garden.

P. waltonii has the reputation of not being a good doer, but Kenneth Corsar ends his detailed care instruction by assuring us that it "is so fine a species that it will be found worthy of it all."

It is doubtful if the true species remains in cultivation and the plant I have is most probably a *P. waltonii* hybrid. The color of the corolla often suggests crossings with the yellow species of this section. The hybrids are quite nice and appear to be better growers.

* * *

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For many years I have grown a plant that is reputed to be a *P. waltonii* cross with *P. florindae*. It is a very neat compact plant about 12" tall - varying somewhat depending on light conditions. The flowers are clear unshaded light scarlet (not ombre'd like the *P. florindae* selections, which are large, up to 4' in size, like the parent.) Flowers

are bell shaped and creamy-mealed within stalks and the meal generously dusts the scape. Leaves are very handsome, deep green, strongly ribbed, and are carried on long deep red petioles. Heavy damp soil suits this plant - it does not require the extremely moist stream-side position in which *P. florindae* thrives. Individual plants are very persistent - my present ones have kept going for well over six years. This cross seems to come true from seed, and is truly worthwhile as a late blossoming addition to your garden. On seed lists it is often classed as red *P. florindae*. TSF.

* * *

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A Synoptic Guide to the Genus *Primula*

by

G. K. Fenderson

This book is intended to serve as a basic reference to the genus *Primula*. Approximately 1375 species, synonyms, and hybrids are included, each with complete reference to author, initial publication, and current status; for nonhybrid taxa, details of typification are also given. Distribution, habitat, altitude, section, a cultural code, stature, and color are indicated for all currently accepted species. The several dozen species described since 1949 are included within this conspectus.

Authors and details of publication are provided for natural hybrids and for many artificial hybrids resulting from crosses of legitimate species; parentage is indicated as well.

An extensive outline of the genus from subgenera to varieties is presented and includes a detailed synopsis of subdivisional characters. Authorities and publication data for all subdivisions are also included.

Fifty-six line drawings prepared from herbarium specimens represent the broad spectrum of forms that have evolved within the genus.

Chapters are devoted to the taxonomic history of the genus, its origins, and distribution. Other chapters treat cultivation of particular species or groups, growing primulas from seed, and pests and diseases.

This book is completed by an extensive bibliography that includes both botanical and horticultural works. It provides a unified reference to the most important horticultural and systematic contributions to the genus *Primula* since the appearance of Smith and Fletcher's monograph.

Pp. i-iv, 1-186 (plus indexes to subjects and to scientific names and authorities) 8" x 10", hardbound on archival quality paper; 56 line drawings, 1 black and white photograph; published at \$40.00. Available from the American Rock Garden Society Bookstore and other major distributors of horticultural and botanical books (outside the U.S.A. from Wheldon & Wesley, Ltd. Codicote, Hitchin, Herts. SG4 8TE, England).

ISBN 0-935868-24-0.

1991 DUES REMINDER

1991 membership renewals are due November 15th. The annual rate for both domestic and foreign membership, individual or household, is \$15.00 U.S. per year (\$16.00 for renewals postmarked after January 1st); \$40.00 for three years; or \$200.00 for an individual life membership. Membership is based upon the calendar year. The year your membership expires is shown in the upper right-hand corner of the address label affixed to the envelope used to mail your Quarterly

We prefer that foreign members make payment in the form of an international money order. However, payment may be made by personal check in currencies of Austria, Canada, Great Britain, Germany, New Zealand, Norway and Switzerland. Checks payable from foreign funds should be in an amount based upon the current exchange rate, plus five percent (5%).

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6620 N.W. 271st Ave.
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DUES INCREASE BEGINS IN CALENDAR YEAR 1991

Dues for membership in the American Primrose Society will change to the following schedule, beginning in calendar year 1991:

**Individual or Household Membership (Domestic & Foreign) -
\$15.00 per year or \$40.00 for three years.**

**Membership Renewals Postmarked after January 1st -
An additional \$1.00**

Individual Life Membership (Domestic & Foreign) - \$200.00

We have eliminated the family membership category and the annual rate will provide membership to all individuals living in the same household. Members who have not renewed their membership for the calendar year will no longer automatically receive the Winter issue of the Quarterly. To cover the extra cost of mailing missed issues of the Quarterly to members who renew late, an additional \$1.00 will be required from those people. The rate for Life Membership remains at the rate established in 1982.

We encourage you to take advantage of the Life Membership or Three -year Membership rate. To save the Society the cost of sending you a reminder, please submit payment for renewal of your membership, by the November 15th due date.

There were two primary factors, which prompted us to implement these changes. One was that we were deriving less income from dues than it cost us to print and deliver the Quarterly to members. The second was the proposed U.S. Postal Service postal rate increase scheduled for the early part of 1991.