

*Central Vancouver Island Orchid  
Society Newsletter  
May 2011*



*Paphiopedilum glaucophyllum var. moquetteanum*  
HCC/AOS 78pts Exhibitor: Donna McDonnell  
Photo by Judith Higham

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Meetings are held September through June on the Saturday before the 4th Wednesday of each month at the Harewood Activity Centre, 195 Fourth Street, Nanaimo, in the hall on the second floor, doors open at 11:30, with the business meeting starting at 12:00 noon.

**Coming Meeting Dates:**

May 21, June 11, Picnic July 24<sup>th</sup>, Sept 24, Oct 22, Nov 19, Dec 17

**Program for May 21<sup>st</sup>**

**The current breeding and culture of *C. walkeriana* and  
current breeding directions at H & R Nurseries  
By Harry**

**Coming Events:**

CVIOS Summer Picnic July 24<sup>th</sup> at Shirley and Ernie McClare's home in Yellow Point

**Editorial:**

Please note the picnic has moved to the Sunday from the Saturday of the same weekend.

The Show is over and was a success and now we can look forward to the Election in June and the Picnic in July. With the improving weather we are now puttering in the garden and trying to keep

ahead of the weeds, which do grow faster than the desired plants. Potting season is in full swing so many of us will have dirt under our finger nails.

I sent the proposed changes to our constitution out to you and I hope you have read them through. Most are simply housekeeping changes making it reflect what our practice really is. There will be a vote held at the general may meeting. These changes were ratified by your executive last month ready to bring to you for your vote.

I was reading the "Our Donut Pots" article and thought that members might like to try using small plants of like culture in a pot of this type for ease of culture. The medium being a larger mass would day moist longer than a few small pots, especially on a windowsill or under lights. They would also be less tippy than small pots. Maybe someone will try something new.

Mike

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Central Vancouver Island Orchid Society  
General Meeting - April 23, 2011

The meeting was called to order at 12:00 noon with 24 members present and two visitors.

1. Vickie Gay moved that the minutes of February 19 be accepted as printed. Mike Miller 2nd and motion carried. There was no meeting in March due to our annual auction.
2. Correspondence included a thank you from the family of Lynne Cassidy for our donation in her memory to the land conservation in Ecuador. Other mail included AOS journals and 2 Lea Valley catalogues.
3. Treasurer Shelley Rattink presented her financial report from February and March including net proceeds from our March auction. Shelley moved acceptance of her report, Vickie 2nd and motion carried. Sue Christison presented a summary of revenue and expenses from our April AOS show, noting a modest positive balance.
4. March newsletter changes were made: The summer picnic will be Sunday July 24 not Saturday, the 23rd and the June meeting is on the 18th, not the 11th.
5. Changes to the constitution: The executive met before the general meeting to discuss the suggested changes to our constitution. Mike Miller will make the proposed changes and forward to all members for review before our May meeting.
6. Programs: Our H&R orders were due today. Our speaker for May will be Harry from H&R. Jeff Haywood is tentatively booked for June.
7. Refreshments: Thank you to Nancy, Mary, Laurie and Maureen for bringing goodies in April. IN MAY - ANGIE, SHIRLEY AND SUE will provide the goodies.

The meeting was adjourned at 12:20 followed by a tour of show tables by Bryan and our guest Chuck Taylor. This was followed by an informative presentation by Chuck on phragmipediums.

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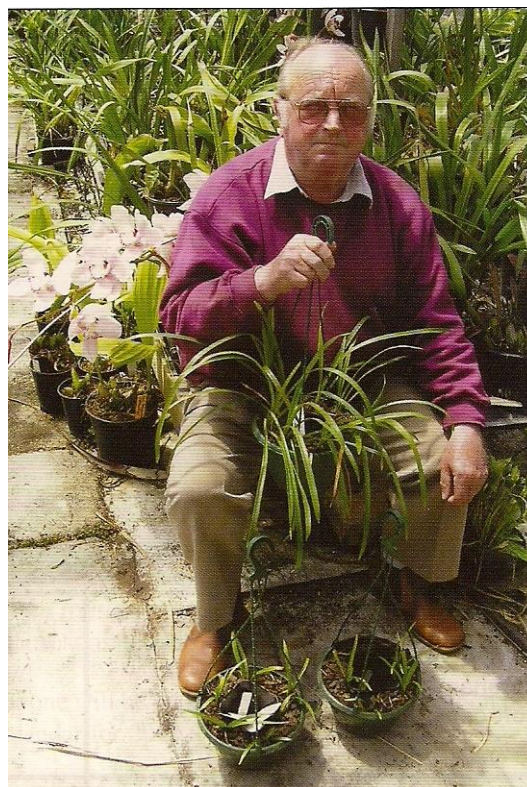
# Our Donut Pots

By Rex Johnson, Photos: R. Johnson

MANY growers buy flasks of cymbidiums and grow them on successfully but if you have trouble here is a new idea that may help.

Recently a colleague, Glen McDonald, told me of an idea he had for potting cymbidiums out of flask into community pots. I am now trialing the idea and at this stage think it is worth telling other growers about.

Glen uses two nursery pots, a 200mm and a 100mm, but I have gone one step further and use a Garden City Plastics, 200mm waterwise pot. The principle is to place a small amount of mix - we are using 5-8mm composted pine bark, (although finer mix may be necessary in some environments) into the larger pot and then sit the smaller pot on it the right way up, so that the rims of the two pots are level with each other, forming a ring between the two pots. This is then used to pot up your plants around the ring. Using a 200mm outer pot it is easy to fit 12 or more plants around the ring.



Glen McDonald displays some Donut pots.

The advantages seem to be that as the centre of the pot is open, it has the same temperature as the outer pot, giving the growers mixture an even temperature throughout. Most find that any plants in the centre of a community pot do not grow as well as those around the perimeter. By using the Garden City Plastic 200mm waterwise pot, water is retained in the base of the pot and air circulation through the mix keeps it damp for three to four days between waterings. Saves on water too! With Glen's two nursery pots they can be placed in a saucer which will have the same effect and you can see when the water is drying up.



Donut pot using GCP waterwise pot.

# Cultural Suggestions for the *Paphiopedilums* Orchids for Every Admirer

(Translated from *Palmengarten* Bulletin)

By Gustav Schoser

It is not a secret any longer that the ladyslippers (*Paphiopedilums*) have a large and still-growing circle of admirers.

The Asiatic species ladyslippers, *Paphiopedilums*, offer a wide variety of color, form and peculiarity that cannot be beaten. They are very decorative and long-lasting. Besides, these species will tempt you with a very long flowering period. This means that we could build up a collection of plants which would give us flowering ladyslippers the year around. The leaves are so diverse in their form and coloration that even without a flower, *Paphiopedilum* species are attractive plants. They do not need a lot of room, because they like to be crowded. Of course, they are not easy to get, and growing them from seed is extremely difficult. Essentially, they multiply better by dividing them. In the meantime, however, a certain production has been started in ground, appropriately prepared for the germination of seed. Still, they are a long way from being easy to get. The so-called vegetative multiplication, the Meristem culture, is not ready to use with *Paphiopedilum*\* as it is with *Cattleyas* and *Cymbidiums*. Even young plants are comparatively expensive for that reason. The natural reserves of these species, in southeast Asia, have been completely ransacked in many places. We cannot condone any more the importation by the thousands of these pure *Paphiopedilum* species, because if this practice continues the plants will disappear within two or three years. That is why the orchid fancier, especially the beginner, should only obtain these species from other orchid growers, who have reproduced them from seed or by division. In no way do they lack any of the beauty of the wild plants, but they do have the great advantage of being much hardier and faster-growing than their parents from the tropical wilderness. [\*The Japanese have mericloned some.]

## ***How and Where Do Paphiopedila Grow?***

Ladyslipper orchids are found in southeast Asia, from India to south China and also on the islands of Malaysia and the numerous islands of Indonesia, as well as the Philippines, New Guinea and the Solomon Islands.

*Paphiopedilum* species will grow just as well at 2,000 meters above sea level as at sea level, if temperature accommodations have been made. That is why there are different types of treatments, which are extremely important to the growth of the plant. The ladyslippers grow in different places; at the edge of a mountain forest, where they are covered with fallen leaves and twigs, which have not begun to rot, the roots spread out flat; down to the limestone cliffs or over rapid brooks or on the cliffs above the beaches. Others grow on granite cliffs, which have a layer of moss only a few inches deep; or you will find some in very loose ground with sand and a little humus throughout. Some grow in the areas of the tropical rain forest, where there is some rain throughout the whole year, but the majority grow in the monsoon areas, which have some dry and some wet months. However, these plants should never get completely dry, since they cannot store any water. In nature, as in cultivation, they have periods of rapid growth when the plants need a lot of water, and a time of rest when growth slows down. Even during this semi-dry period the leaves do not get limp or fall off.

The planting mixture for these orchids as with others is always a problem. The rule used to be: have a good mixture of roots from ferns (*Osmunda*, *Kingsfern*, and *Polypodium* fern), with Sphagnum or Swampmoss, which should be green, living and growing like a cushion placed all around the plant on top of the mixture. These items are difficult to obtain. This was early utilized in Japan, which used to have an abundance of ferns and mosses, now has very little, as many of the natural habitats have been carelessly destroyed. If one wants to collect fresh, living Sphagnum, one is well advised to ask

the forester for permission! Some growers have chopped ferns and fernstems and have used these fibers with some success in different mixtures. *Paphiopedilum* growers, who have the most experience, use Pine and Fir bark in small pieces up to 0.5 cm and granulated styrofoam, flakes or chips in a 3: 1 ratio. About 10% pumice gravel should be added to the mix for plants, which in nature grow on limestone. Should you not be able to get any treated bark, take the bark and chop it real small and if possible moisten it three times a day to get the resin (sap) out and to kill off any bacteria and fungi. After the ingredients are mixed together, they should be put in a plastic bag with plenty of water. The bag should be closed and allowed to stand overnight. The mixture will absorb as much water as is needed for transplanting. For the next four weeks heavy watering can be eliminated. The plants need only to be slightly moistened. The very clever growers will bury their freshly potted plants, even the imports, up to the rim of the pot, in moss. This way the plants will have moisture on and around them, without your constantly having to dampen sensitive roots, which after transplant are not able to take up any water. To be able to take up water a new root should be formed. It is about a one centimeter white root-tip which later on will have a brown velamen coat. Few *Paphiopedila* have wiry roots, but while growing always have a white point at the tip of the root to show that there is some activity. Root formation can only come about if there is a high moisture content around the roots and the leaves, but not from direct watering. While planting, it is very important, whether there are any roots or not, to put the plant in deep enough to cover the bottom of the leaves also. It has been observed in nature that the roots will form in air which is saturated with moisture, and later on will settle in the substrate.

The experts recommend the following method: wrap a plant which does not have any roots in foam rubber and stick it in a wide-necked bottle which holds a diluted mixture of fertilizes. The plant should not touch the water, just reach into the moisture-laden air in the bottle. Since no roots will grow if any light is allowed to shine into the bottle, it should be completely wrapped in foil. There are a few exceptions.

*Paphiopedila* can also grow as epiphytes, *P. lowii* for instance. Some growers use the bark-styrofoam mixture and cover the pot with swampmoss, but please be sure that the sphagnum is cut so short that the heads will lay right next to each other, just as the moss is growing in nature. The swampmoss also grows toward the light, which means it has a vertical axis and does not like to be put every which way. Only then applies the old saying from the gardener, "If the moss will grow, the plant will grow." This way the sphagnum cushion is a big help to the plant. With the usual temperatures for the *Paphiopedilum*, the moss will only last six months. It will get long very quickly and fall over, but it is a big help at the start.

"Recognize the gardener by his watering" is another old saying. One could knock on the clay pot to see if water was needed or not. The callouses on the knuckles were the sign of the expert breeder, who treated his plants individually. He could also tell by the color of the pot, if water was needed or not. Today, the plastic pot is dominant. It would be of no use to knock on it. Resourceful gardeners have, at least on an experimental basis, tried putting plastic pots on a scale. A heavy pot indicated that the plant had enough water, while a lightweight one meant that the plant needed water. Today a pipe which emits water like a sprinkler is popular. The water pours out fast and does not have to be carried in small cans by the second man through the garden. Unfortunately, most of the time the water rushes too fast through the sieve instead of going through the atomizer. Many of the fragile plants drown. Here too, as always in a nursery, let the plants enjoy the water that is available in the vicinity, until they signal that they need water again. One has to look at and live with the plants. A torrent of water should never disturb the quiet peace of the lady'slipper in the greenhouse. Besides, at our latitude, it is enough to saturate the *Paphiopedila* once a week. Two or three hours after receiving water, they should have a liquid fertilizer during the summer months while they are growing. An easy to dissolve fertilizer is advisable: NPK 30: 10: 10 in a .01 % solution. These are very moderate ingredients, but should be applied regularly. *Paphiopedila* are very moderate consumers. Besides,

plants in plastic pots do not dry out quickly, therefore they do not need much water. Naturally water consumption *is* higher on sunny days than it is during the dark winter months.

The light requirements for *Paphiopedilum* is almost the same for the whole year. On the average it amounts to 7500 lx (Lux). To get a picture of the required intensity, a clear day in the middle of summer in Central Europe will measure 75,000 lx. That is ten times the amount *Paphiopedila* need for full utilization. On the other hand it has to be taken into consideration that in the winter months, especially November and December, the light intensity on a cloudy day with smog is very often only 750 lx, which is only one-tenth of the requirement for the plant to survive. The total requirement for the plant per day amounts to about 100,000 lxh (Lux-house) which means 10 hours with each 10,000 lx, or about 14 hours of 7,500 lx. This rate applies to most species, especially those with thin and spotted leaves. The species with hard leaves need about 25% more light. The blossom of the *Paphiopedilum* is not dependent on the duration of the light period per day. The formation of the blossoms is obviously influenced through lower temperatures.

The need for warmth by *Paphiopedilums* is likewise very clearly dependent on the origin of the plants. Lowland species need tropical temperatures. Highland species need correspondingly lower temperatures. The general temperature level lies about between  $t=15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ) and  $t=30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ). Only a few species are content with  $t=12^{\circ}\text{C}$  ( $53.6^{\circ}\text{F}$ ) as minimum temperature. These are the ones: *P. insigne*, *P. fairieanum* and *P. druryi*. According to recent examination and observation, it seems to be most favorable to have four temperature levels for *Paphiopedilums*: warm -  $t=22^{\circ}\text{C}$  ( $71.6^{\circ}\text{F}$ ) as minimum night temperature; moderately warm -  $t=18^{\circ}\text{C}$  ( $64.4^{\circ}\text{F}$ ) as minimum night temperature; and, moderately cold -  $t=15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ) as minimum night temperature.

For cultivating, most of the wild species and all hybrids like moderate warm to warm temperature; therefore, the temperature level should be kept at  $t=18^{\circ}\text{C}$ - $22^{\circ}\text{C}$  ( $64.4^{\circ}\text{F}$ - $71.6^{\circ}\text{F}$ ) at night and  $30^{\circ}\text{C}$ - $35^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ - $95^{\circ}\text{F}$ ) for days. Low temperatures retard the growth. The blossoms appear weeks late, and the flower stems stay short too. *Paphiopedilum* plants are grateful for constant light-air circulation around the leaves.

**Transplanting** is another important aspect in raking care of the plants. It is usually done once a year, between February and April. Since *Paphiopedilum* does not have any bulbs and its growth is sympodial, this has to be done very carefully. Sympodial means that new sidebuds will form from the leaf-root base, and thus originate a bunch of vegetative growths. A bunch like that should not be pulled apart. Should you want to do so anyway, start weeks before the transplant, and make an incision with a sharp knife on the part that you would like to separate. That will stimulate new root formation and cut down the loss significantly. But under any circumstances, you should avoid cutting them into two different pieces at this stage.

Large plants are less susceptible to errors in watering, etc., than small ones. For good root formation peat moss in the right combination is important. It should have a weak acid reaction. Be extremely careful while watering in the beginning. Now the third suggestion: the peat moss must be open evenly on the surface. If a blue-green covering (blue algae) develops, it will seal the surface hermetically, and the roots will decay. That covering has to be removed immediately and replaced by a new one, which will ensure some air from above for the rootball. While taking the plant out of the old container, shake out the roots. The root formation is now visible, and you notice whether or not they are healthy. Roots that have either died or rotted should be cut off very carefully with a small sharp scissor up to the wooden root stump. They are of no use to the newly set plant. On the other hand, the plant will have to be repotted very securely so as not to disturb the root formation. In this case you take the plant and wedge it firmly in the substrate, or take a small bamboo stick and tie it to the plant before putting the plant in the peat moss substrate. It should be covered with live moss tops, which we have talked about before, and this is a big help.

When transplanting, use as small a container as possible. A small pot is highly conducive to root formation. While transplanting, it is beneficial to put something for good drainage in first, about 1/4 or 1/3 deep with pieces of bricks or lava gravel in the pot. Hold the plant with the roots in the

container so that the leaf base is even with the edge of the pot. The peat moss material should be very carefully put between the healthy roots. Every so often hit the pot lightly on the planting table in order that the material will be evenly disbursed among the roots. It is not necessary to press the mixture down. It is a disadvantage for the formation of the roots to place the plant too high or too low in the pot. After potting, it might be helpful to cover the plant with a plastic bag with holes in it to insure high but not sticky air-moisture.

### ***When the Flower Is Growing***

When a new shoot has formed, it is like a guarantee that one of these days a blossom will appear. But first the shoot has to be fully grown. It should be the size of the parent shoot. It might even be larger. At this stage, at least with several species, it could influence the flower formation, if there would be a one or two month period when the night temperature could be lowered 3°-4° C (37.4°-39° F). After elevating the temperature back to normal, a few weeks or months later appears a pointed triangle sheath on the newest sprout. The plant is now at a dangerous stage, because if any water is left in the crown, it could mean the loss of the flower. At this time the plant needs to be watered very carefully. If possible, the temperature should not be lowered any more at night. Then it would form longer shoots.

At this time the growth of the plant spike should be especially fast. We distinguish between three types of flowers: 1. One flower on the stem; 2. Two flowers; 3. Ever-flowering. On the last one, one flower after another opens up on the same stem. The flowering of the consecutive blossoms continues for about nine months.

All orchids have six members of the corolla. The three in the outer circle are called sepals, while the three inner parts are called petals. A tremendously big change occurred with the evolution of the ladyslippers. The outer circle consists of two sepals; the dorsal sepal or the flag and the synsepal (under the shoe), which consists of two pieces which have grown together. The inside parts consist of both of the more or less horizontal situate petals, and the modified inferior petal, resembling the shape of a shoe. The fertilizing organs are sitting on the same column as the sepals and petals. The column closes off in the flower with a characteristic column plate, which is called the staminodium in technical terms. On both sides of the column plate are the wax-like pollen package, the pollinia. At about a right angle to the column extends its three piece, grown together organs into the shoe. This way nature assures herself of pollination. The insect that lands on the column plate will fall into the trap, the shoe. The only exit is between the column and shoe rim. While leaving the trap the pollen that the insect brought along will be unloaded on the scraping margin, which stands in the way and/or new pollen will be taken by the insect, deposited as it leaves the flower.

In cultivation pollinization has to be helped along a bit. From old experience, the wax-like sticky pollen has to be kneaded to be adherent (after Prof. Burgeff!). To be very sure, some breeders remove the shoe for pollinating. A well-nourished flower is going to collapse in a few days, and the fruit pod will get bigger with pollinization. It is going to take from ten to fourteen months for the seeds to mature. While in the seedpod, the seeds have a restraint factor against premature germinating in the last stages; therefore, the germinating in' especially prepared ground would take a long period of time. For that reason, many growers used to water the seed with a special adapter. Today, in the age of cell culture, after six months they harvest the yet green seedpod ("greenpod"). By that time the fertilizing cycle should be complete.

The planting is done under sterile conditions. Ehrenfried Lucke has contributed greatly toward simplifying the procedure. The period of time for germinating is very indefinite and erratic. It is not unusual for the seeds to lie for a whole year in the sterile medium before germination begins.

### ***Paphiopedilum Forms, Varieties, and Species in Nature***

The number of species and the disclosure of new habitats in southeast Asia have created a violent dispute among *Paphiopedilum* taxonomists. One group, the "splitters," likes to divide. They

prefer to declare a variety of species, without showing specific differences. The other group comprises the "lumpers." They only want to acknowledge a few species, without being able to prove their assertions. We still do not know much about the places of discovery, the propagation of the species, and even less about their origin. In the area around Kew Gardens are the "lumpers." At home in the USA are the "splitters." Maybe here, too, the right way would be the golden middle.

### ***Cool Growing Species***

***P. insigne*** from the Himalayas is known for its many shapes. It was used very early in cross-breeding. The leaves are light green and firm. The flower stem is 30 cm. long, sometimes with two flowers. The color of the blossom varies, but is usually yellowish-green. The flag has a white background with purple-brown spots. The petals have a wavy edge. It is a winter bloomer.

***P. fairieanum*** from Assam is a small plant with deep green leaves. The flower stem is about 20 cm. long. The flower is relatively small, but pretty. The flag has a white background, yellow-green on the base, purple stripes, wavy on the edge. The petals bend downward, are hairy, and the point turns upward. The lip is green, with a red overcast and purple veins. It is a fall-winter bloomer.

***P. druryi*** from south India Travancore grows at about 1,800-2,000 m. elevation. Relatively scarce, the leaves are strap-shaped, medium size and deep green. The flower stem will grow to 30 cm. The flower is medium size, the flag is oval yellowish, the petals gold-yellow, spotted on the bottom with an almost black stripe in the middle. The lip is yellow. Its qualities impart to progeny well. Spring, early summer bloomer.

### ***Paphiopedilum Species for Moderate-Cool Culture***

The wild forms of this group all belong to the subgenus *Neuropetalum*, with the type *Paphiopedilum insigne*. First of all *P. exul* and *P. gratixianum* should be enumerated first.

***P. exul*** from Thailand has a slightly smaller leaf than *P. insigne*. The flag is yellowish-green with purple spots and a broad wide edge. The petals are yellow with purple stripes, the lip is transparent yellow. Early summer bloomer. It grows at sea level in Thailand, very hot and humid and is the exception in culture of this group.

***P. gratixianum*** from Annam Vietnam has a dark green leaf, almost twice as long as that of *P. insigne*. The flower is a little larger, the flag is covered with round black spots, petals and lip are greenish-yellow-brown. Early summer bloomer. It grows at 3,000 ft. elevation in Laos.

***P. hirsutissimum*** from Assam in India exists with its related species, *P. esquirolei* from south China and north Thailand, as an independent species. The leaves are small, uniform, green, up to 20 cm. long. The flower stem grows up to 35 cm. high and is hairy. The flowers are large, with lashes, greenish coloring suffused with purple. Edges are wavy, lip is green-brown-purple. Spring bloomer.

***P. villosum*** from Moulmein Burma, Laos, and Thailand is in alliance with *P. boxallii* from Burma, with leaves up to 20 cm. long. On the bottom of the leaves are purple spots. The flower stem is 30 cm. long with white hairs, quite often hanging with large flowers. The flag is greenish with white edges, the base brown-purple. (In *P. boxallii* the base of the flag has dark purple spots.) The petals are yellow-brown, the lower half lighter, the lip brownish-yellow. Winter and early spring bloomer.

***P. spicerianum*** from Assam India has green leaves up to 20 cm. long. The flower stem grows up to 30 cm. high, very often hanging, with one flower. The flag is white with a green base and a purple stripe in the middle, the petals are pale green with purple markings, the lip is brownish-purple. Winter bloomer.

***P. venustum*** from north India has gray-green spotted foliage, purple underneath. The flower stem is about 20 cm. long. The flag is greenish-white and has purple stripes. The petals have purple spots, the lip is yellowish with green veins and a slight purple overcast. Spring bloomer.

### ***Paphiopedilum Species for a Moderate- Warm Culture***

Multiflowered *Paphiopedila* with *P. philippinense* from the Philippines with its relatives, *P. bodegomii* from west Irian, *P. randsii* from the south Philippines, also *P. roebbelinii* and *P. laevigatum* from the Philippines. They do have leaves like leather up to 39 cm. long. The flower shoots are up to 50 cm. long and have two blossoms at the same time. The ground color is yellowish-white, with brown and purple stripes, the petals are hanging, quite often twisted, yellowish-purple shading. The lip has a yellow ground color and brown or purple markings. Summer bloomer. (Needs about 25% more light.)

Also multiflowered are *P. parishii* from Moulmein, Burma and *P. haynaldianum* from the north Philippines. The leaves on these are also like leather, dark green about 30 cm. long, the flower stem is up to 50 cm. long and has 3-7 blossoms. In *P. parishii* the flag is yellowish-green with green veins. The petals hang and are up to 12 cm. long and twisted, small with dark spots and purple shading. The lip is yellowish with green shading. Summer bloomer.

*P. haynaldianum* has a pink to yellow-green flag with brown spots. The petals are 10 cm. long, standing horizontal with sloping ends, the lower half yellowish-green with brown spots, the ends purple. The lip has a slight purple overcast. Spring bloomer.

Under the same condition, but with normal light-intensity the following should be cultivated: *P. appletonianum* from the hinterland of Laos; *P. wolterianum* from western Cambodia; *P. amabile* from west Kalimantan; *P. robinsonii* from central Malay Peninsula; *P. sublaeve* from Kedah Peak Malaysia; *P. volonteatum* from Mt. Kinabalu, Sabah, north Borneo. They have medium sized flowers, greenish flag and a white edge, with lavender-mallow colored petals, with green shading, green-brownish lip. Spring, early summer bloomer.

In the group of hairy ones these are included: *P. barbatum* from west Malaysia; *P. callosum* from the hinterlands of Cambodia and Thailand; *P. wardii* from Burma; *P. sukhakulii* from north Thailand; *P. tonsum* from Sumatra; *P. ciliolare*, *P. hennisianum*, and *P. acmodontum* from the Philippines. All of these have more or less marbled leaves, the flower stem is about 30 cm. long, the flags have a white background with different stripes, the petals are also striped and are very hairy on the edge, the lip is brown-purple. Winter-summer bloomer.

*P. charlesworthii* from Burma is a small plant with small leaves. The flower stem is about 20 cm. high, the flag is white, pink and very broad, with relatively small petals and lip, which are yellowish-brown. The column plate is white. Summer bloomer.

Also in this culture group belong *P. bellatulum* from Thailand and Burma and *P. concolor* from Burma to Vietnam, and the variation in size is just as large. Both belong to the species, respectively subgenus, of *Paphiopedilum* with an egg-shaped lip. The overall shape is diminutive, the flower stem on the first one is just a few centimeters long, the other one grows up to 15 cm. The leaves are fleshy and spotted, the ground color is whitish-cream, but the other one is yellowish-white. *P. bellatulum* usually has large red-purple spots. *P. concolor* has red speckles. Early and mid-summer bloomer.

### ***Paphiopedilum* Species Requiring a Warm Culture**

From the sub-species of the multi flowered plants the following should be included: *P. stonei*, *P. rothschildianum*, *P. praestans*, *P. wilhelminiae*, and *P. lowii*, from Borneo and New Guinea; *P. victoria-mariae*, *P. chamberlainianum*, *P. glaucophyllum*, *P. primulinum*, etc., from Sumatra and Java. *P. lowii* also grows in Sumatra, Java and the Celebes. *P. stonei* and the others have dark green leathery leaves up to 40 cm. long, the flower stem is just as long and has 3-5 flowers. The background is whitish to yellowish, with dark red stripes, mostly longer petals hanging or horizontal and twisted. The lip is whitish yellow with pink to red shading. They need a high light intensity about 10,000 lx. Summer-fall bloomer.

From the *Barbata* subgroup are the following: *P. mastersianum*, from the island Ambon; *P. bullenianum*, *P. hookerae*, *P. linii*, and *P. volonteatum* are at home all around the south Chinese Ocean as are *P. javanicum*, *P. virens*, *P. purpurascens*, *P. curtisii*, *P. superbiens*, *P. violascens*, *P. bougainvilleanum*, *P. lawrenceanum*, *P. argus*, *P. purpuratum* and *P. dayanum*. All of these have marbled leaves. They have less light requirement than the previous group. Even here changes are

going to be made in the systematic order through continuing investigation. The flower stem has one flower. The prevailing colors are white, green, brown and purple, mostly summer bloomers.

Among the broad-leaved species are: *P. niveum* from the islands around northern Malacca; *P. delenatii* from Vietnam; and *P. godefroyae* from the Birdsnest Islands of Thailand. The shape of the plant resembles *P. bellatulum* or *P. concolor*. *P. niveum* and *P. delenatii* have a flower stem of about 20-25 cm. long, which occasionally has two flowers. The background color could be white or pink with delicate spots. The lip is in the shape of an egg. The main blooming season is early summer.

### ***Paphiopedilum* Crossbreeding**

For 110 years there have been hybrids of *Paphiopedilum*. The first one was introduced by John Dominy as *P. Harrisianum*. It originated from crossing *P. villa sum* with *P. barbatum*. It bloomed in 1869, for the first time. Hybridizing is a very interesting territory. We still know very little about the most important traits. Almost every flower, even out of the same seedpod, is different from the others.

All of the several thousand crossbreedings cannot be described. There are two classes: 1, the Primary hybrids (two species); 2, Secondary hybrids (primary hybrids together, or with species).

Editor's Note: The taxonomy of this group has changed since 1981 and you should check with a modern source for current specific names.

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The other plant awarded at our show was:

*Lycaste* Astra 'Hatsune' AM/AOS 82pts (*Lyc. tricolor* x *Lyc. brevispatha*)

Exhibitor: Dr. Art MacGregor

Photo by Judith Higham

