



Grower: Lammot du Pont Copeland

Figure 1. *Paphiopedilum* Rosy Dawn 'Superbum', CCM/AOS (84 pts) is a fine example of a complex green-leaf hybrid grown into a handsome specimen plant. This cross of *Paph.* (*Astarte* X *Gwen Hannen*) was first registered in 1935.

Paphiopedilum Culture for Beginners — 2

NED NASH

IN THE BEGINNING, there were species. And, lo, *insigne* begat *Leeanum*, which, in its time, gave the giant *Christopher*. *Christopher*'s progeny were legion, but one amongst them was the favorite — *Chardmoore*. Out of *Chardmoore* and its spawn came so many of what we know today as the standard, green-leaf complex *Paphiopedilum* hybrids — *Bushey*, *Farnmoore*, *Inca*,- *Bell Ringer*, *Fairburn*, and others too numerous to mention. While this simplistic approach tells us a lot about how we might best grow these plants, the picture has been clouded over the past 100 years by the infusion of such species as *bellatulum*, *niveum*, and other "hard-to-grow" types into the breeding lines.

This, of course, would not be the case if folks had been satisfied with the brownish, skinny-petaled, reflexed types that we had before the use of the more exotic species. No, the public demanded round, brightly-colored monsters even if they might have been a bit more difficult to grow and more expensive to produce. More expensive to produce in the sense that, unfortunately, those most closely approaching the "ideal" are usually the most difficult from which to obtain seed.

The above notwithstanding, the green-leaf types are, in general, usually easier to grow than the mottled-leaf types. Their higher tolerance of cool conditions leads them to be considered "*Cymbidium* companions" in southern California, and they can be nicely summered out of doors in a shady location in all but the hottest areas. Most are much easier to grow into large plants than are the mottled-leaf types, and a "happy" green-leaf hybrid provides a spectacular and long-lasting display (Figs. 1, 10). Some

types also can produce their spikes sequentially over a period of months. In my living room, I have a *Paph.* Susan Tucker that has been producing spikes continuously since early September and at this writing (March 1, 1985) it still has two developing inflorescences.

It must be remembered that while this type may be one of the first orchids in a beginner's collection, it takes a while to appreciate fully the standard complex hybrids. The species, primaries, and near-primary hybrids in the mottled-leaf complex have more general appeal, if only for their rather strange appearance. "Sophistication" might be the word best used to describe the trait most helpful in understanding and enjoying this type. "Spotted monsters!" "I don't like them. They're too round." "What an ugly color combination!" "These are orchids?" All these comments may be heard in the orchid sales house or in your own greenhouse — and perhaps all are true. But, as the old saw goes, "Beauty is in the eye of the beholder" and plenty of "beholders" spend a lot of money to have the best of this type in their collection.

LIGHT

These are *not* shade plants. The solution to shading the plants adequately in too many collections is to grow them under the benches. This is unsatisfactory for several very important reasons. While they will grow and flower in such locations, the foliage will become very soft, as will the flower stems, which often won't support the flowers. It's harder to regulate the amount of water the plants receive while under the benches and this can lead to rot problems, especially with the foliage so soft. Also, the plants will be more subject to the types of pests one is likely to find on the ground, such as slugs, snails, and sowbugs.

Green-leaf paphs generally prefer about the same light regime as their mottled-leaf cousins, that is, bright but diffuse light. Plants receiving enough — but not too much — light will have large, firm leaves forming a broad fan. If the leaves are more erect than horizontal, the light is too bright. If the leaves are too large and not firm, the plant is not getting the light it needs.

Flower stem length also can be influenced by light. In general, short stems are the result of over-bright conditions and, conversely, over-tall stems are indicative of too little light. While tall stems are the usual goal, the stem should be strong enough to support the weight of the flower and should be in proportion to the plant and flower. Figure 2, *Paph.* Pitt River 'Chestnut' shows proper proportion and how a properly grown plant might look in your greenhouse before you stake the spike. I usually like to see the length of the stem of a paph be about three to four times the overall diameter of the flower as this provides the best balance and display.

TEMPERATURE

This potentially can be a bit "tricky" in the successful culture of this group. It can be said that "in general" green-leaf complex hybrids prefer to be run about 5-10 degrees cooler than the mottled-leaf types, i.e. 55°F at night and less than 80°F during the day. This is mitigated by several factors, however. First is the importance of day-night differential, as in the mottled-leaf types. Spike initiation is probably triggered by the drop in temperature that usually occurs in the early fall. But spikes reach their optimum length and strength when grown at 60-62°F. This means that plants are best grown relatively cool through the summer and then can be grown right along with the mottled-leaf plants until spring.

Another factor influencing the temperature preferences of this group is the use of warmer-growing parents to achieve a certain objective, i.e. true reds or whites. Especially in the *Paph.* Redstart-influenced hybrids, such as *Paph.* Orchilla, *Paph.* Battle of Egypt, and *Paph.* Startler, true cold-tolerance essentially has been lost in favor of the beautiful color. This type generally has a plant habit like the standard complex type but with lightly patterned foliage. Whites, relying as they do on the *Brachypetalum* influence, have a similar but reduced habit. These reds and whites like to be grown on the cool side; indeed, the reds won't develop their best color otherwise. But these types of plants will not tolerate cold winter conditions. Their general reaction to over-cool conditions is a distressing tendency to rot.



FIGURE 2: *Paph.* Pitt River 'Chestnut', photographed by the author, exhibits good stem length. Ideally that should be three to four times the overall diameter of the flower.

Grower: Armacost & Royston

Probably the most important thing to remember about temperature regime for these plants is the necessity of a day-night differential for plant health and a seasonal differential for spike initiation. Otherwise, this type, like so many other "tropical" orchids, prefers a minimum variation of temperatures outside of the day-night differential and likes to be kept as much as possible toward the lower end of the range.

WATERING AND FERTILIZING

Because the species progenitors of this group inhabit similar, although generally higher-latitude and/or altitude, ecologic niches, their watering and fertilizing needs are quite similar to the mottled-leaf types. This group can be called "terrestrials" insofar as they inhabit the forest floor. They do not really grow in soil, per se, but tend to spread their roots through the humus debris that collects in fissures of rocks or on the forest floor. This dictates their need for even, constant moisture and a light fertilizing schedule.

However, the complexity of the hybrid background of most of the members of this group does allow for a heavier feeding schedule to be used. Especially in commercial operations, a greater amount of fertilizer is given to speed production, and thereby reduce costs. The hobbyist grower can use this technique to his advantage, growing larger, more robust plants that can be propagated more rapidly. But do not get carried away with this trick! My plants grow best with weekly half-strength applications of a commercially prepared fertilizer. Actually, this regime is followed most religiously during spring and summer months and then reduced greatly during fall and winter (to once a month at most). With higher fertilization rates, it is doubly important not to let your plants dry out because the increased salts present can burn off the roots rapidly.

POTTING AND MIXES

The old adage about there being as many potting mixes as there are growers is nowhere more true than it is with paphs. While the basic composition is determined by the nature of the plant, the individual grower's interpretation of how best to meet the plants' needs varies widely from area to area. The mix should be well-drained



LEFT,

Figure 3. *Paphiopedilum* McLaren Park 'Silver Lining' has outgrown its 6" container and is in need of repotting. Note the "dead spot" in the center, where old growths have faded.



RIGHT,

Figure 4. When unpotted, the roots of *Paph.* McLaren Park 'Silver Lining' still look surprisingly good, despite the bad decomposition of the potting medium.

but moisture-retentive and ideally should last two years. "Ideally" rarely happens today, owing to the poor quality of the fir bark available and to the fact that even the best fir bark's breakdown is hastened by being kept "evenly moist."

I have been using essentially the same mix for the past five years with better-than-reasonable success. Shortly before Rex van Delden left Fred A. Stewart, Inc., he shared his paph mix (of the time) with me. It consists of approximately 50% fine fir bark, 40% #4 horticultural charcoal, and 10% coarse sand. If sufficiently coarse sand is unavailable, fine perlite will do just as well. I find that this mix holds up better than most because the charcoal does not break down and keeps the mix "sharp" and free-draining for up to 18 months. Paphs like to be potted at least every two years. The mottled-leaf types seem to need it a bit more often, perhaps because they are grown in smaller pots that need watering more often. Younger plants of both types may need to be potted as often as every 12-15 months until they develop into more sizable specimens. Because you will be potting your plants relatively often, it's important not to over-pot. This will allow for the more frequent watering the plants prefer without creating the attendant danger of soggy mix.

The accompanying series of photographs shows a plant of *Paph.* McLaren Park 'Silver Lining'. Figure 3 illustrates a plant that has been in its pot too long (about 30 months). While the plant is still in reasonably good health, note the dying leaves and "dead spot" in the center, where older growths have faded. Figure 4 shows the same plant removed from its pot. The roots still look surprisingly good, not of the dark color characterizing dead roots. The mix, however, shows the characteristics of bad decomposition in the way in which it easily falls away from the roots and has a very dark color. The next two illustrations show a division of the above plant.



Figure 5. A division of the overgrown *Paph.* McLaren's Park 'Silver Lining' shows the "stump" of an old growth (indicated by the pencil).



Figure 6. The old "stump" shown in Fig. 5 has been severed from the new fan of leaves (indicated by the pencil), even though some roots are lost with it.

Figure 5 shows how paphs often will have leafless "stumps" where older growths have died (indicated by the pencil). Figure 6 shows how the stump should be removed, despite the fact that many roots go with it. The front division still has adequate roots remaining to branch and the new growth will produce its own new roots. Figure 7 illustrates five, good, flowering-size divisions taken from the one original plant. If the plant had not been allowed to go so long between pottings, we might have been able to salvage the entire plant in one division, which is preferable for the hobbyist because larger divisions guarantee better and more numerous flowers. Commercial growers, of course, prefer to propagate their plants for resale and often cannot afford to allow their prize clones to develop into specimen plants. One of the most important — and sometimes difficult — aspects of potting to master is the placing of the plant at the proper depth in the mix. The plant should be deep enough so that it is secure and not wobbly — but not so deep that water lodges in the new growths. That can lead to rot. Figure 8 shows two properly potted divisions from the plant we have been discussing. Note that the mix just covers the base of the emerging growths. There is a tendency not to want to pot the plant deep

Figure 7. Five healthy, flowering-size divisions have been obtained from the one overgrown plant of *Paph.* McLaren Park 'Silver Lining' shown in Fig. 3.



enough, and Figure 9 shows what happens. Not only does the plant not look too attractive but the emerging root tips cannot penetrate immediately into the mix to nourish and anchor the plant. This can lead to some unfortunate results, such as a heavy flower breaking off the fan at the base because of insufficient anchorage. It's usually better to err on the side of too deep, rather than too shallow, as the very top of the mix can be washed off in watering, leaving the plant properly situated.



Figure 8. Two potted divisions of *Paph.* McLaren Park 'Silver Lining' show the proper potting depth for the plants.

Figure 9. This *Paphiopedilum* hybrid has been potted too high. Emerging root tips cannot penetrate the mix quickly in order to nourish and anchor the plant.

Photographer: Ned Nash



The "when" of potting paphs is not really as difficult as some of the other steps. Paphs, unlike most other orchids, can be repotted any time, even when in bud or bloom. In fact, when I first started growing them in any quantity, I wouldn't repot until I saw some evidence that the plant was going to flower. This was the trade-off between getting the plants sufficiently established to bloom, and not leaving them in bad mix too long. As I learned more, it became a guessing game (educated, of course!) whether to pot just before



Figure 10. *Paphiopedilum* Hellas 'Casa de Victoria', HCC/AOS (77 pts), an excellent example of a complex green-leaf hybrid, was grown by De Victoria Orchids.

the
plant

showed buds or — as I do now — simply to pot the plant when it needs it. This, as stated before, is between 12 and 24 months, depending on type and size of plant.

There are, however, definitely times of the year and/or stages of growth at which it is best to pot. This is really much the same as for other orchids. That is, either in early spring, just as growth starts to emerge and after flowering, or late summer, when growth is still occurring and just before flowering. Alternately, if growths are about half-made, many new roots will be coming and potting can be very advantageously done.

If you're not sure just when your plant would like to be potted, one suggestion is gently to knock the plant out of its pot and look for fresh, growing root tips, especially from the base of the plant or new growth. Such new root tips bring joy to even the most experienced paph grower because they mean that he or she is doing at least something right, and the plant should continue to grow.

IN GENERAL

These complex, standard hybrids are generally easier to grow than most of their mottled-leaf counterparts. However, exceptions to the rule exist here, much as in any type of orchid. While the green hybrids are the easiest and freest-growing of all, the inbred *Paph.* Diversion types or hybrids from such parents as *Paph.* San Carlos 'Terry' and *Paph.* Halo Tall Tones' (themselves notoriously difficult to raise) can provide a real challenge to grow and, indeed, to flower.

It is just as important with this type initially to select only the most vigorous and healthy plants for the best results. As one's sophistication increases, one discovers that some of the more finicky individual clones are usually only available as small propagations, making their culture and eventual flowering all the more difficult.

In the next, and last, installment, I will deal with some of these more difficult types. These will include not only some of the more intractable standards, but also *Brachypetalum*-based hybrids and those from the strap-leaf group. In closing, don't get your hopes up over learning the real secrets about the harder-to-grow types. I have just as much trouble with them as the next guy. All I can offer is some insight into the successes and failures I — and others — have known.

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