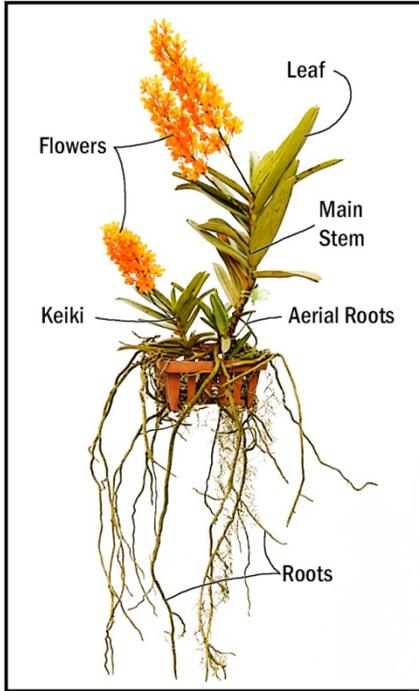




Orchid Plant Parts and Why They Matter

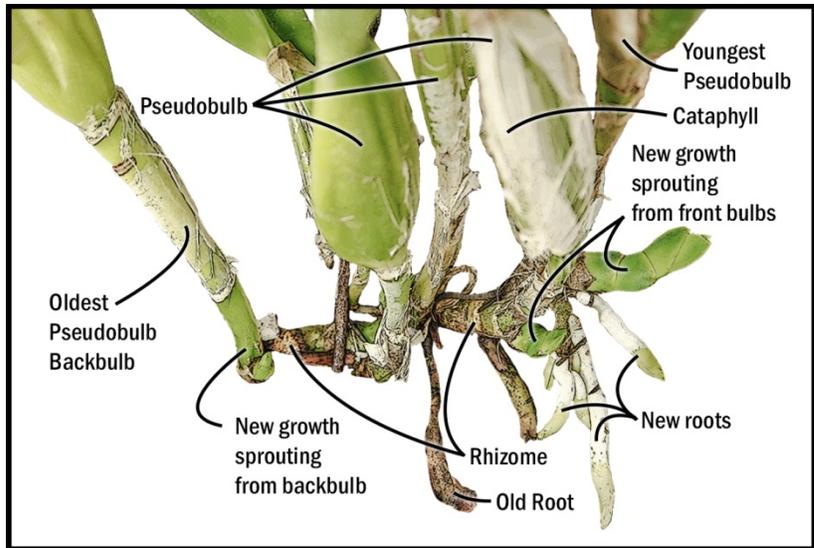
by Sue Bottom, sbottom15@hotmail.com

It doesn't really matter if you can remember all the names of orchid plant parts, but it is to your benefit to understand how these parts function. We'll talk about all the basic orchid parts to help focus your attention on things to look for when you are looking at your plants.



Orchid growth habits fall into two basic groups, the monopodial orchids that grow vertically and the sympodial orchids that grow laterally. **Monopodial** orchids like phalaenopsis and vandas grow upward from a single stem. Orchids with this growth habit grow upward from season to season from a single vegetative shoot. Leaves, roots and flower spikes sprout from nodes along the stem. Normally the plant will lose its leaves from the bottom up and continue to grow new leaves from the terminal or apical tip while making new roots along the stem. Monopodial orchids do not have fleshy pseudobulbs for storage of food and water like the sympodial orchids, so they require more frequent watering and feeding. Vandas often produce a **keiki** (KAY-kee) a Hawaiian term for baby that is used to describe a plantlet that sprouts from a mature plant. Keikis are a great way to share your plants with friends.

Sympodial orchids like cattleyas, dendrobiums and oncidiums branch outward horizontally rather than grow vertically like monopodial orchids. Sympodial orchids grow laterally and produce a new shoot along a rhizome that develops into a stem with roots and leaves and eventually produces flowers. This growth process is repeated in a continuous cycle. Sympodial orchids have pseudobulbs that grow along a **rhizome** (RYE-zohm), a root-bearing stem the apex of which progressively sends up leafy shoots. When repotting, the rhizome should be at or just above the potting media. There is a greater potential for rot if the rhizome is buried in the potting mix. A **pseudobulb** (SOO-doh-bulb) is the thickened portion of a stem used when discussing cattleyas, oncidiums and many other sympodial orchids. A cane, used when discussing dendrobiums, is similar to a pseudobulb but is much more stalk-like in





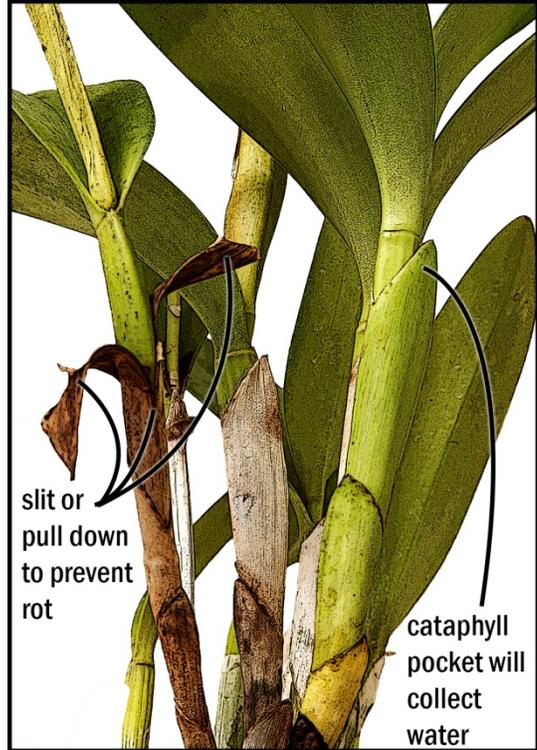
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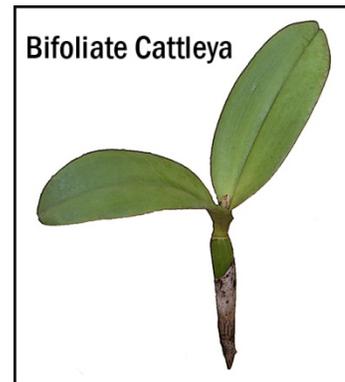
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appearance. The pseudobulbs and canes are like the humps on camels, storing food and water to sustain the plant during droughty conditions. They perform a vital function to the plant even when leafless. **Front bulbs** are the pseudobulbs on the younger part or the plant. The front bulbs are the actively growing part of your plant and it is from these new growths that new flowers will emerge. The **backbulbs** are the pseudobulbs on the older part of the plant. The backbulbs are often without leaves but as long as they are still green, they continue to provide nourishment to the plant. Backbulbs can be used to propagate new plants from the original plant when new growths are encouraged to sprout from blind or dormant **eyes**, the incipient buds of vegetative growth. There are at least two eyes on each pseudobulb so that if one eye or lead becomes damaged, a new pseudobulb can emerge from the other eye. The **cataphyll** (KAT-a-fill) is an undeveloped leaf that forms around the base of the pseudobulb and matures to form a papery sheath along the length of the pseudobulb. When the pseudobulb is growing, the cataphyll provides some structural support and protects the tender new growth from mechanical and insect damage. Cataphylls can sometimes form pockets where water can accumulate and bacterial action can cause the bulb to rot so the pockets should be slit or the cataphyll pulled down so water will drain freely. Once the growth is mature and hardened, the dried cataphylls can be removed before they become hiding places for scale and other sucking insects.



Orchid Leaves vary from the thin leaved oncidiums and catasetums, the fleshy phalaenopsis to the hard dendrobium and cattleya leaves that have waxy coverings that help minimize water loss. Cattleyas with a single leaf are called **unifoliate**s and cattleyas with two (and occasionally three) leaves are called **bifoliate**s. Unlike the unifoliate, bifoliate cattleyas should be repotted only when they are growing new roots. **Stomata** (sto-MAH-tah) are pores on the lower surface of the leaf epidermis through which the plant breathes. The stomata are mostly closed during the day to



prevent water loss by transpiration and open at night when temperatures are lower and humidity is higher. This means that orchids are not good candidates for foliar feeding. If specialty foliar sprays such as those



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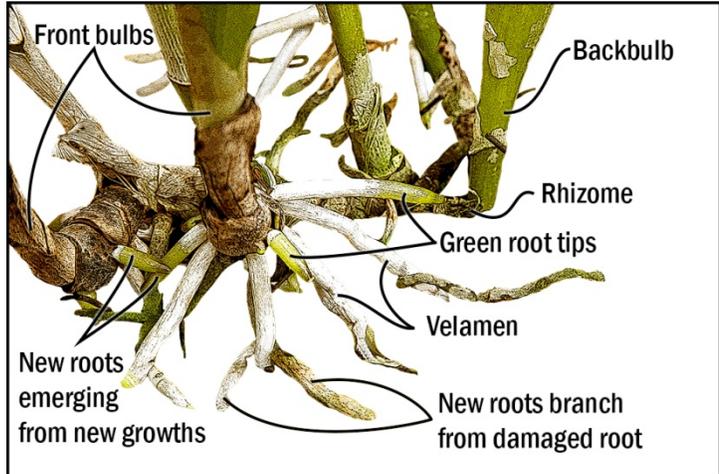
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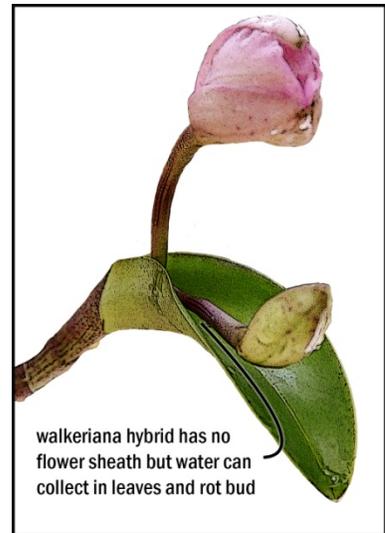
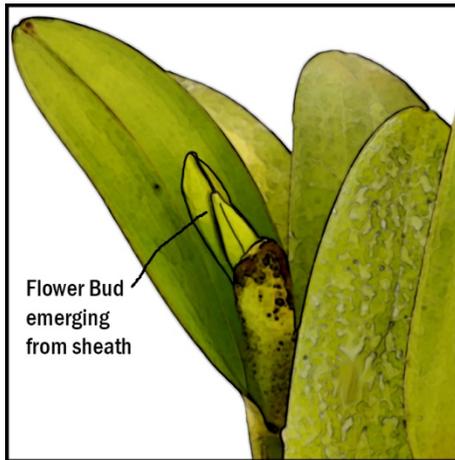
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containing minor or trace elements designed to be absorbed through the leaves are to be used, they are best applied to the undersides of the leaves in the predawn hours.

Orchid roots consist of an inside wiry filament and thick sponge like covering called **velamen** that helps prevent water loss and aids in absorption of water and mineral nutrients. Actively growing orchid roots have green (and sometimes reddish) tips, the longer the green tips the faster the roots are growing. The white velamen layer follows a few days behind the root's growth tip. The emergence of fresh roots tells you your plant is going into the growth mode, if it needs to be repotted, the time is now (or maybe you should have done it last week when the new growth was swelling up before the green tips emerged).



On cattleyas, flower buds emerge from a **sheath**, a modified leaf that encloses an emerging inflorescence. Some cattleyas bloom soon after the growth matures and the sheath is formed (said to bloom on green sheaths) and others rest for several months before blooming (said to bloom on dried sheaths). Sheaths should be watched carefully. If the color changes to yellow or brown, the sheath should be carefully opened and pulled down so water can drain freely. Otherwise condensation inside the sheath from day-night temperature changes can cause the flower buds to rot in the sheath. Some cattleyas like those with walkeriana in the background don't bloom from sheaths. If you allow water to accumulate in the cataphyll extending above the leaf base, it can rot the emerging bud.

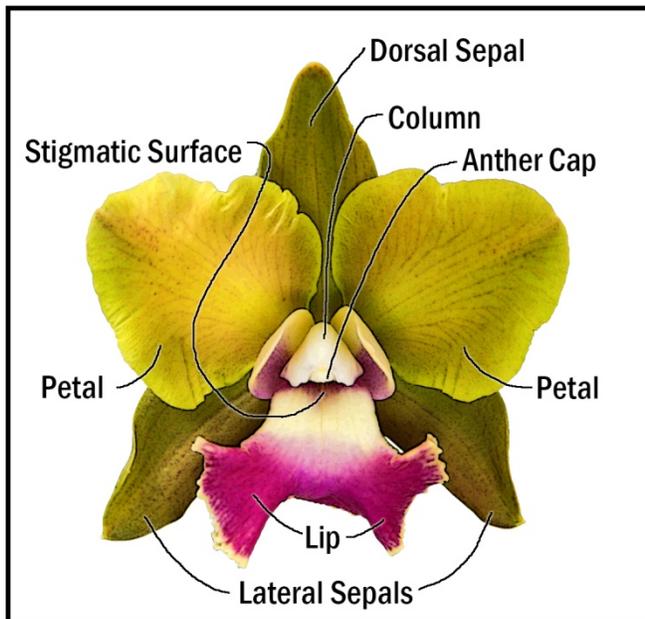
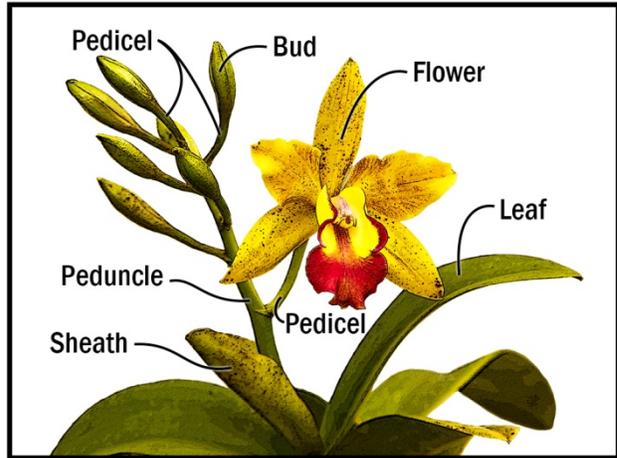




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The **inflorescence** (in-floor-ESS-ents) is the flowering part of the plant. Typical parts of the inflorescence include the peduncle, pedicel and flower itself. On a cattleya, the inflorescence consists of a **peduncle** (pe-DUNK-ul), the stalk of an inflorescence that arises from the bulb, and the **pedicel** (PED-i-sel), the stalk of an individual flower that branches from the peduncle. Some orchids like a *Rl. digbyana* have a long and twisted pedicel so the flower is normally not well displayed unless it has been staked to provide structural support. Phalaenopsis bloom from a **raceme** (ray-SEEM), a type of inflorescence with short-stalked flowers borne on an elongated stem that bears the pedicels and flowers. Racemes can be upright, arched or even pendent. Those of phalaenopsis are most often upright or arched and should be staked during development to make sure the flowers are presented to their best advantage.



Orchid flowers have three outer and three inner flower parts. The outermost flower parts are the three **sepals**, the dorsal sepal at the top of the flower and the two lateral sepals at the bottom of the flower. The innermost flower parts are the petals, consisting of the two petals on either side of the flower and the **lip** or **labellum** usually at the base of the flower. The lip is a modified petal and often the most striking part of the flower. It is very different from the other two petals and plays an important role in pollination, often serving as a landing platform for insects. The **column** is a flashy structure that is in the middle of the flower and consists of fused reproductive parts, the male **anther**

that bears the **pollinia** or pollen pellets and the female receptive organ, the **stigma**, a shiny depression filled with a sticky fluid. You don't need to know much more about this X-rated material unless you feel compelled to carry a toothpick around with you while you are admiring your orchid flowers. At that point, you'll have to give yourself over to a higher power as your orchid addiction has escalated!