

14. PROPAGATION OF ORCHIDS BY DIVISION

1. ORCHID TRIBES

Although there are about 25,000 species of Orchidaceae, most of these species grow naturally in tropical jungles and/or are grown as exotics by orchid collectors. A limited number of the following species are grown for commercial production: *Cattleya*, *Phalaenopsis*, *Cymbidium*, *Vanda*, and *Dendrobium*.

A. The Aerides Tribe

About 18 genera (epiphytes) native to the Philippines, Asiatic tropics, Australia, and Africa. Does not have rhizomes, grows naturally on trees, likes warm humid climates. Some representatives of the genera are:

Phalaenopsis - "Moth Orchid" about 50 species, mostly tropical. It is adapted to low-light intensity and some flowers last two to five months. The plants slowly increase in height and have attractive foliage with leathery or shiny surfaces. It is propagated mostly by seed but sometimes by side shoots.

Vanda - They are robust and sun loving. Most of the leaves are strap-shaped. Fleshy roots are produced from the stem between the leaves. Flower stalks alternate on the stem with sepals and petals of usually similar size. Colors include white, yellow, rose purple blue, and brown.

B. The Cattleya Tribe

Most common with many cattleya species and their crosses grown as sympodial growth with rhizomes. Flowering is controlled by day length. Two important genera are:

Cattleya - Epiphytic growing naturally on trees and rocks. A large number of species and their hybrids are grown. Has a large color variation and is propagated by seed and asexually.

Epidendrum - Contains about 1000 species. It is fragrant, epiphytic, and native to South America. It is propagated by seed and aerial off-shoots.

C. The Cymbidium Tribe

Native to Southeast Asia. It is narrow-leaved and can be cultured in outdoor gardens. Only one genus is important for commercial production.

Cymbidium - Most popular for flower arrangements. Has cluster of flowers on flower stalk, is pseudobulbs and new growth rises laterally. Flower stalks appear from June to October and mostly flower during winter and spring. It is propagated by division.

D. The Cypripedium Tribe

Paphiopedilum - Heavy textured flowers. It likes reduced light intensity and is propagated by division of rhizomes.

E. The Dendrobium Tribe

Native to Western Asia, Pacific Islands, New Zealand, Philippines, and Japan. One genus is important:

Dendrobium - Epiphytic and about 1000 species in the genus. Flowers are often small and born on stalks with arching sprays of five to twenty flowers with some hundreds of flowers on drooping flower stalk. The stems are sometimes deciduous, the stems are also thick and long. Division of off-shoots in propagation., It is adapted to a wide range of temperatures and all require good light conditions.

G. Odontoglossum Tribe

Native to Central America it prefers cool summer night temperatures. Three important genera are:

Miltonia - It is also called 'Pansy Orchid.' It is propagated by division of pseudobulbs, prefers cooler night temperatures (55-60°F) and a humid air environment. It has light green foliage and flattened pansy-like flowers.

Odontoglossum - Native to the mountainous regions of Central America. Prefers cooler temperatures, medium light intensity, and 70% humidity. It is propagated by seed or division.

Oncidium - Native to tropical America, from Florida, the West Indies and to Central America. It is epiphytic and prefers cool nights. Propagated by seed or division of pseudobulbs.

2. CLASSIFICATION OF ORCHIDS BY GROWTH HABIT

Orchids in nature may grow epiphytically (on trunks or branches of trees) or terrestrially (roots buried in soil). The epiphytic orchids should be kept dry during some period of time, either before or after flowering, and the terrestrial should be grown with a continual supply of water throughout the year.

A. Sympodial Growth (feet together)

Growth habit that gives many stems rising from connected rhizomes. Usually each stem contains pseudobulbs, thickened foot reserving stems and can be used singly to produce a new plant by division.

Example - *Cattleya*, *Epidendrum*, *Oncidium*, *Odontoglossum* (very compact), and *Dendrobium* (tall stems). See Figure 1.

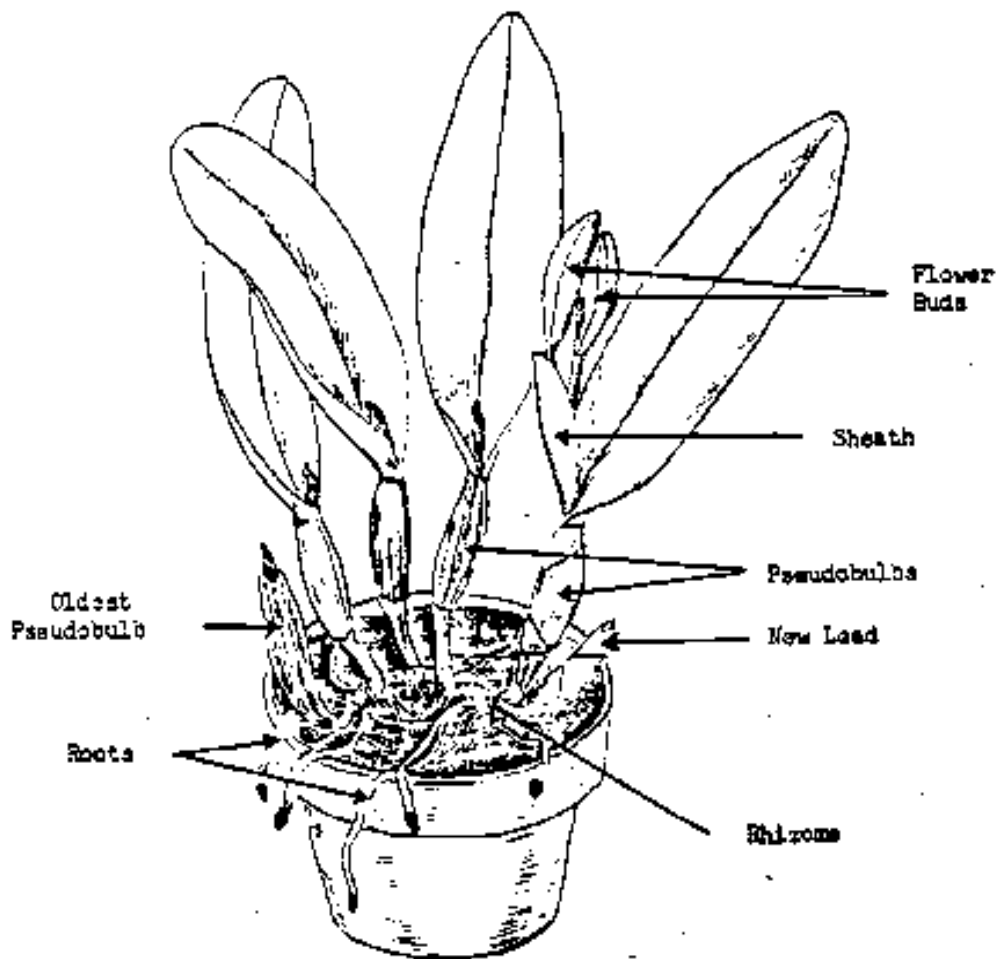


Fig. 1. *Cattleya* showing a sympodial growth habit.

B. Monopodial Growth (one-footed)

Typical *Vanda* type of growth (with a single upright growth). No rhizomes are formed. Plants have to be propagated by seeds or by cutting stems into pieces when roots are present on each node.

Example - *Vanda*, *Phalaenopsis* (See Figure 2)

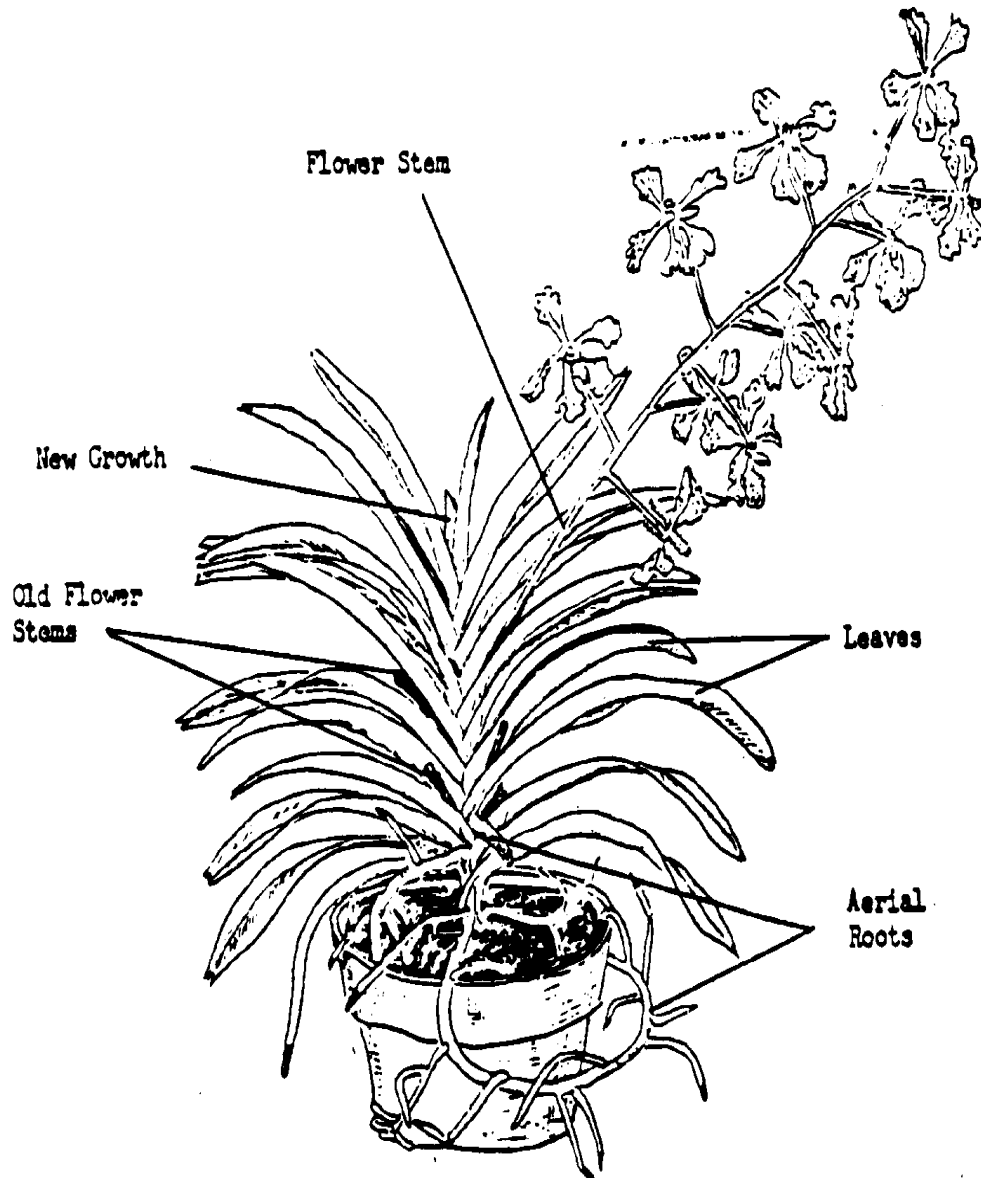
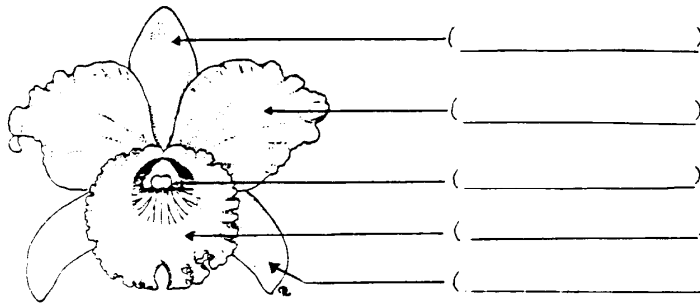


Fig. 2. Monopodial growth habit of *Vanda* orchid. A single stem grows taller each year, adding new leaves at its tip. Aerial roots come from the stem between the leaves, as do the flower stem.

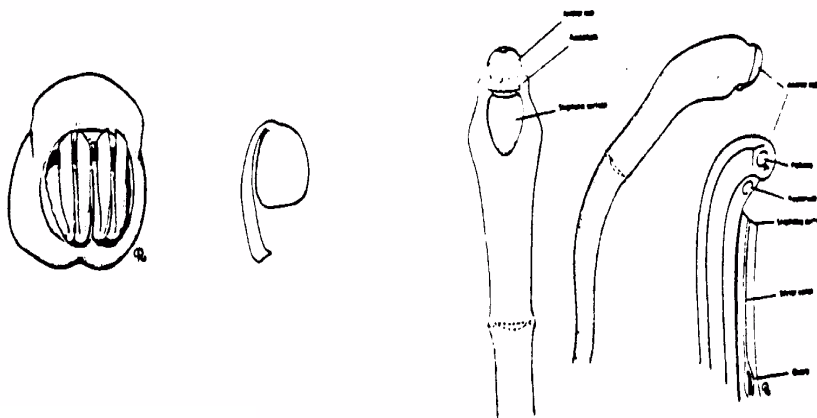
3. THE FLOWERS

A. Flower Structure



B. Pollen Sac, Pollinia, and Column

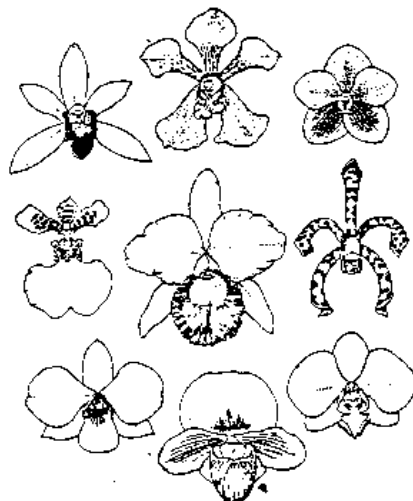
Anther and pistil are fused together in a waxy unit called the column or gynoandrium.



D.

Representative Flowers

From left to right: *Cymbidium*, *Vanda*, *Ascocenda* in the top row; *Oncidium*, *Cattleya*, *Arachnis* in the middle row; *Dendrobium*, *Paphiopedilum* and *Phalnaenopsis*.



4. PROPAGATION BY

DIVISION

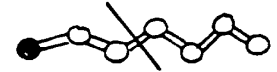
A. Use of offshoots (*Dendrobium*, *Epidendrum*), backbulbs (*Cymbidium*)



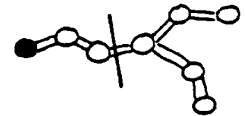
B. Use of pseudobulb rhizomes (*Cattleya*)

The rings indicate pseudobulb containing plantlets connected by rhizomes. Rings with solid black color are the oldest pseudobulbs and the terminal rings indicate new leads.

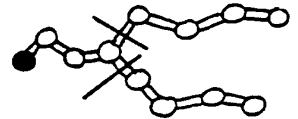
- a. **One lead plant** - Divide at the line and plant the lead containing rhizomes. Discard the old pseudobulbs.



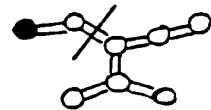
- b. **Two leads** - Divide at the line and keep the branched leads as one unit. Discard the old pseudobulbs. The two leads are not yet ready to be divided.



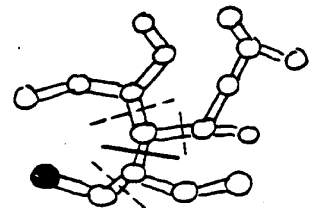
- c. **Two lead plant** - Divide at the lines and plant the two front lead sections as two units. Discard the backbulbs if they are no longer vigorous.



- d. **Three leads** - Divide at the line. Keep the three leads being planted together. The number of new pseudobulbs is too low to be divided. Discard the backbulbs.



- e. **Plant that can be kept as a unit** - This plant has branched and rebranched, giving an opportunity either to keep it as a unit by removing just the backbulb or of making two or three divisions. Solid line is for making one division to produce two plants; dotted line for two divisions to produce three plants.



- f. **Plant that should be kept as a unit** - Similar to Number 5 above, with more leads. Each growing end makes two leads each year. Since it is beautifully symmetric, this plant can be kept as a unit as long as possible.

