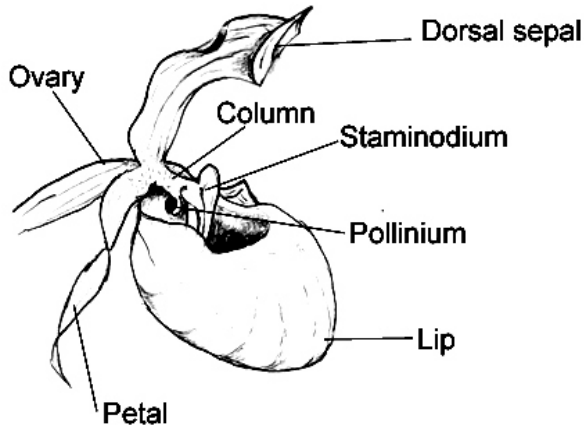


## Pollinating Cypripediums By Hand

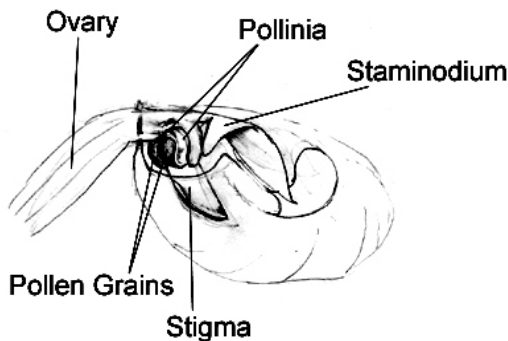
by Doug Harris, Houston Orchid Society



Here is a sketch of a cypripedium flower. The pouch or lip is shaped much like a lady's slipper by which these orchids are described or known. The various parts of the flower are shown and named. The pollen grows behind a shield like portion or "staminodium" above the area where it is placed to pollinate the flower to produce seed. The "pollinium" or pollen grains are balls of a waxy substance. When an insect enters the flower as it approaches the shield, it is directed into the pouch. To get out, the insect must crawl up the back of the pouch and pass the sticky stigma behind the

staminodium. If the bee or fly has visited another cypripedium flower, pollen sticks to the insect's back. As it passes the stigma, the tight opening behind the shield forces contact and any pollen attached to the insect sticks to the stigma.

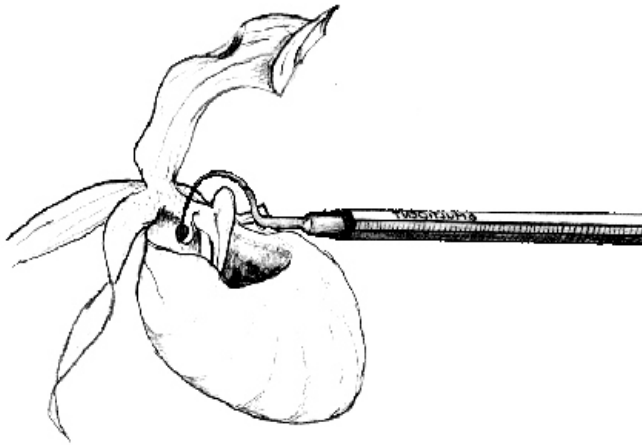
Passing the stigma as it makes its way up, the insect comes into contact with the flower's pollinia and the grains are pressed against the insect's back and attach so that if it goes to another flower and repeats the process, a second flower gets pollinated. However, since few slipper flowers offer nectar rewards, the insect usually loses interest in continuing to go to other cypripediums. As a consequence, not every flower ends up becoming a seed bearer.



To provide selection of outstanding flowers for propagating or to make sure that a flower actually gets pollinated, one can place the pollen on a flower's stigma by hand. The

natural pollination process discourages self-pollination by simply having the pollen above the stigma surface. Self pollination or "selfing" might be a means of survival but may also increase the probability of recessive genes in the progeny. If pollen from a close relative is used, the result of crossing is then called "sibling crossing" and again may breed in recessive genes. The result of crossing two distantly related plants is called "outcrossing" and has the potential of providing a measure of "hybrid vigor" and thus is the preference of many who artificially pollinate cypripediums.

An article called "Artificial Pollination of *Cypripedium* species" by Camiel F. De Jong published and copyrighted in 2002 (Email: [camieldejong@zonnet.nl](mailto:camieldejong@zonnet.nl)) suggested using a dental tool instead



of a tooth pick for pollination tasks. The sketches appearing herein are done by Camiel and are reproduced with permission.

The tool has a curved end which provides a means of reaching both the pollen and the stigma area without destroying the flower. Once deposited, the pollen will begin to grow into the ovary to hopefully fertilize the ova inside. Camiel also suggests placing netting around the pollinated flower to discourage insect pests from harming the capsule or seed pod.

During a recent visit to my dentist, several used stainless steel dental tools were obtained for future pollen placement on *Cypripedium kentuckiense* flowers.

Because they are stainless, simple disinfection using 70% isopropyl alcohol before each use will avoid fungal or bacterial infection of the pollinated plants.

I would encourage anyone who might be interested in reading the full article on “Artificial Pollination of *Cypripedium* species” to go to <http://www.cypripedium.de/forum/pollination.pdf>.