

About the Exhibition: Orchid Express

The Orchid Express explores the transformation of exotic orchids that have always been among the most popular of the plant kingdom, despite the fact that orchids once bore the reputation of being hard to grow, as well as prohibitively expensive.

Orchid Express

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Exploration

Exotic orchids have always been among the most popular and sought after members of the plant kingdom, despite their past reputation of being difficult to grow and expensive. With the advent of new technologies in the plant industry, orchids are seen everywhere from hotel lobbies to dining room tables. Orchid Express explores the progress of how these beautiful plants were collected, transported, cultivated, hybridized, propagated and finally mass-marketed to plant lovers everywhere.

Hunt for Orchids

Throughout much of the 19th century, plant collectors were dispatched to the far reaches of the globe to find new and exotic plants for cultivation and sale in Europe.

Intrigues between major European nurseries, like Sander's and Veitch's, included secrecy about the location where choice species were located. Entire populations of some orchids were removed from their natural habitats so that the valuable plants would be available from only one nursery.

Orchids are collected from all types of environments.

Vandas, *Phalaenopsis* and some *Cattleyas* come from lowland tropical rainforests with temperatures ranging from 65 and 85 degrees Fahrenheit.



Most *Cattleyas* and *Oncidiums* grow in forests where moderate temperatures prevail.

Cool growers, like *Masdevallias*, *Telipogons*, and *Cymbidiums*, come from upper elevations where temperatures dip below 50 degrees Fahrenheit. They are extremely delicate and can die when placed in hot conditions.

Deadly Journey: A Cargo of Orchids



Orchids found in markets today have a past filled with danger. In the age of exploration, collectors paid vast sums to obtain rare tropical

plants.

Captains James Cook and William Bligh of England carried out legendary exploits in the late 18th century while pursuing unusual plants for aristocrats and scientists. Joseph Banks (1743-1820), naturalist, advised hunters to be prepared to make supreme sacrifices in order to add a new species to man's knowledge of the world.

The long journey on a ship with little water and space proved dangerous for orchids. Many died after being sprayed with saltwater, exposed to the cold, or packed too tightly.

Jean Linden, a Belgian explorer and horticulturist, went to the mountains of South America in 1841 to search for orchids such as *Odontoglossum crispum*. Linden wrote, "...the poor plants had to endure the sea-voyage at the bottom of...a rough sailing

vessel...packed like herring in a barrel..." The heat and fermentation caused many of them to perish during the journey.

A collector, Nathaniel Ward, experimented with growing plants inside glass containers using little or no water. He found that the cases worked well for shipping plants over long distances.

These "Wardian" cases were used by explorers like Sir Joseph Dalton Hooker, a director of Britain's Royal Botanic Gardens at Kew.



Orchids: Mania!...Fever!...Obsession!

The orchid symbolized colonial adventure, scientific investigation, and religious debate during the late 18th and 19th centuries. Orchid growing became a personal obsession for some.

Collecting in Europe and America

One collector, William Cattley, brought some plants from Brazil in 1818. He found an orchid used as packing material. The orchid--the first of its kind to bloom in Britain--was named *Cattleya* in his honor.

Hobbyists soon caught "orchidomania." They rushed at the chance to be the first to "discover" a new species. In 1867, General John F. Rathbone, of Albany, New York, wrote, "I was so delighted with the plant...that I caught the Orchid Fever, which...I trust will become epidemic."

Orchids in Stoves and Houses



Enthusiastic collectors built heated greenhouses, called stoves. Unfortunately, people misunderstood that not all orchids needed hot air to survive.

Orchids from tropical regions also included those

growing on mountains where the air is cooler. Some bloomed in stoves, but many died. Horticulturists declared England to be a cemetery for orchids.

In the mid-1800s, Sir Joseph Paxton of Great Britain was the first orchidist to abandon stoves and adopt greenhouses with ventilation. Cool-growing orchids like *Cattleyas*, *Lycastes*, *Oncidiums*, and *Cypripediums* survived. The mystery of getting an orchid to bloom was solved.

Benjamin S. Williams, author and orchid specialist, wrote a series of articles in 1851 titled "Orchids for the Millions." Everyone from the working class to the wealthy could now grow orchids. Large nurseries flourished. In 1856, John Dominy of Veitch & Sons created the first orchid hybrid, *Calanthe dominyi* (*furcata* x *masuca*). This started a new era in orchid growing.



Smithsonian Institution orchid houses today (left)

and in the 1980s (right).

CITES - Convention on the International Trade in Endangered Species



Many orchid species survive in small enclaves and reserves in natural habitats. As more habitats are destroyed many plants, like orchids, are found in fewer locations. The Smithsonian Institution and the United States Botanic Garden Collections represent more than just beautiful flowers. They are actually repositories for genetic material that may not survive in the wild due to environmental or collecting pressures. Networks of botanical gardens in the U.S. and throughout the world serve as rescue centers for endangered plants. CITES regulates the exportation of certain endangered animals and plants including orchids.

Tissue Culture: Orchid Cloning for the Masses

In nature, most orchids form an association with fungi in order to help the plant obtain nutrients. Growing orchids in greenhouses takes many years to bloom and divide for sale. The correct growing media and conditions are crucial to success.

Tissue culture, or cloning, produces large numbers of genetically identical disease and virus free plants in a relatively short period of time. The first commercial use of plant cloning on artificial media in a controlled environment was in the germination and growth of orchids in the 1920's. A new plant is generated from as little as one cell from the desired plant, known as the mother plant.

- 1. Mother plant**
- 2. Cell tissue (explant) taken from Mother**
- 3. Placed in sterile environment (like a flask) with nutrients**
- 4. Placed in culture room with proper light and temperature**

5. Ex-plants are cleaned, fed, and trimmed

6. Rooted shoots are de-flasked and potted up

Used for many orchids, this method is used by nurseries and scientists. It helps conservation programs produce thousands of rare and endangered species without ever going into the wild.

Flower Shop: Orchids for Sale

Orchids are prized for their beauty, fragrance, and exotic nature. Orchids gained popularity in the twentieth century as corsages. In recent years, they have



HARGROVE

become America's most attractive houseplant due to factors such as numerous varieties, hybrids, low cost, ready availability, and simple maintenance.

High-tech laboratory techniques and mass retailing have made orchids increasingly easy to find. Long-blooming *Cymbidiums*, *Laelias* and *Epidendrums* flourish outdoors in mild climates. Indoors, moth orchids (*Phalaenopsis*) and lady slippers (*Paphiopedilum*) will bloom for months in ordinary household conditions.

Artist's rendering of florist shop in "Orchid Express."