

Palm House continued

Banana



Bananas aren't actually trees, but are giant herbaceous (not woody) perennials. There are over 100 *Musa* (13) species native to Asia and Australia. After flowering and setting long clusters of fruit, each stalk dies back and new stems emerge from the roots.

Cinnamon comes from the bark of *Cinnamomum zeylanicum* (14) and is a favorite spice in both the new and old world. Control over the production was sought by many European powers, especially Portugal and Holland, who fought over Sri Lanka, the tree's native country. In a similar story, the nautical exploration that resulted in the "discovery" of the New World was spurred by efforts to control the trade of black pepper, the fruit of the Indian vine *Piper nigrum* (15).

Tropical forests yield many beautiful and useful woods (visit the Woods of the World (16) display to see some examples), although many have been exploited and are now rare. Mahogany, *Swietenia mahagoni* (17), is a favorite of furniture and instrument makers for its reddish-brown hue.

Stove House

While many orchids are used for floral displays, the only major commercial food product from the orchid family is vanilla, which is made from the dried and fermented seed pods of *Vanilla planifolia* (18), a vining species from Mexico. The process used to make vanilla as we know it can take up to one year to complete, consequently natural vanilla is the second most expensive flavoring after saffron.



Pineapple

Pineapple, *Ananas comosus* (19), a native of Paraguay, Uruguay, and possibly Brazil, was once a rare treat in Europe, reserved for royalty. It is the only member of its family, the Bromeliaceae, to be grown on plantations worldwide.

Rice, *Oryza sativa* (20), is often considered the world's most important crop. It has been cultivated for thousands of years in Asia. Alexander the great brought the grain to Europe in 320 BCE. Rice is the primary source of calories, protein, and carbohydrates for some 1.7 billion people. Over 95 million metric tons of rice are harvested each year. The primary producers are China, India and Indonesia.



Rice

The grass from whose stalks we manufacture sugar, *Saccharum officinarum* (21), or sugar cane, has one of the darkest histories. High demand for sugar led to the creation of more plantations which were highly labor intensive. This led to the enslavement and transport of millions of African people to the New World plantations by Europeans of many nations.

Warm Temperate House

One of the quirkiest of the hundreds of citrus plants in cultivation is the ponderosa lemon, *Citrus 'Ponderosa'* (22). It produces a giant fruit and is believed to be a hybrid of citron and lemon, originating as a chance seedling during the 1880s.

The star fruit or carambola, *Averrhoa carambola* (23), is a small tree native to India and Indonesia. Rich in vitamin C, the star shaped fruit has a mild sweet and tart taste.



Starfruit

Warm Temperate House continued



Cotton

The world's most popular fabric, cotton, is manufactured from fibers that surround the seeds of plants of the genus *Gossypium*. Although there are about 40 species of cotton know only two, *G. hirsutum* (24) and *G. barbadense* (25) are important in world trade.

Cool Temperate House

Each of the four geographic regions represented in this greenhouse have contributed important economic plants. The most popular beverage in the world, tea, is made from the leaves of *Camellia sinensis* (26). In its native China the cultivation, selection and processing of tea leaves follow centuries-old traditions. *Ilex*



Tea

paraguariensis (30) is a holly whose leaves are dried to make yerba mate, a popular caffeinated beverage in its native region of Argentina, Brazil and Uruguay. One of the most important international agricultural commodities, coffee, is produced from the seeds of a tree native to the highlands of Ethiopia, *Coffea arabica* (28).

The oil of eucalyptus is used medicinally (its scent recognizable in cough-drops and vaporizing liniments). It comes from the large genus *Eucalyptus*, with over 700 species found almost exclusively in Australia. *E. glomeratus* (27) is one of the main species used for oil production.

Olive oil pressed from the fruits of the olive tree, *Olea europaea* (29), is a major economic crop originating from the Mediterranean region where it is a staple of the diet.



Olive

Botanic Garden of Smith College

Some Economic Plants of the Lyman Conservatory



Humans rely on plants for just about everything! Thousands of species from different plant families, climates, and regions of the world are used to make products that are essential to modern life in various cultures around the globe.

We use plants to feed ourselves and our animals, fuel our machines, clothe and care for our bodies, and construct our world. Additionally, we use plants to express our emotions (as in giving flowers), to make ourselves more attractive (perfume, cosmetics), beautify our environments, and we are soothed and healed by them.

Given the significance of plants in our lives, the economics of cultivating plants, processing them into products, and distributing those products worldwide plays an interesting and important role in the way that humans conduct themselves and interact with each other.

Succulent House

Aloe barbadensis (1) has been recognized for its healing properties for over 2,000 years. The early Greek, Roman and Chinese civilizations began the tradition of using sap and mucilage from crushed leaves. They contain more than 200 different compounds that moisturize and soothe skin rashes, irritations and burns, as well as aid digestion and combat stomach problems. Sales of raw aloe grown on plantations worldwide total around \$85 million annually, while the cosmetics, lotions, medicines and other aloe products are sold for an estimated \$13 billion per year.



Agave sisalana (2) is grown for its stiff fiber (sisal), which is used to make a durable rope that stands up to salt water.

A tree native to Ethiopia, *Boswellia sacra* (3) is valued for its fragrant resin. Frankincense, the gum resin from the tree was used in ancient Egypt to anoint the dead. Paired with another resin, myrrh, frankincense established its importance to the Christian religion as the gifts given to the infant Jesus.



Show House

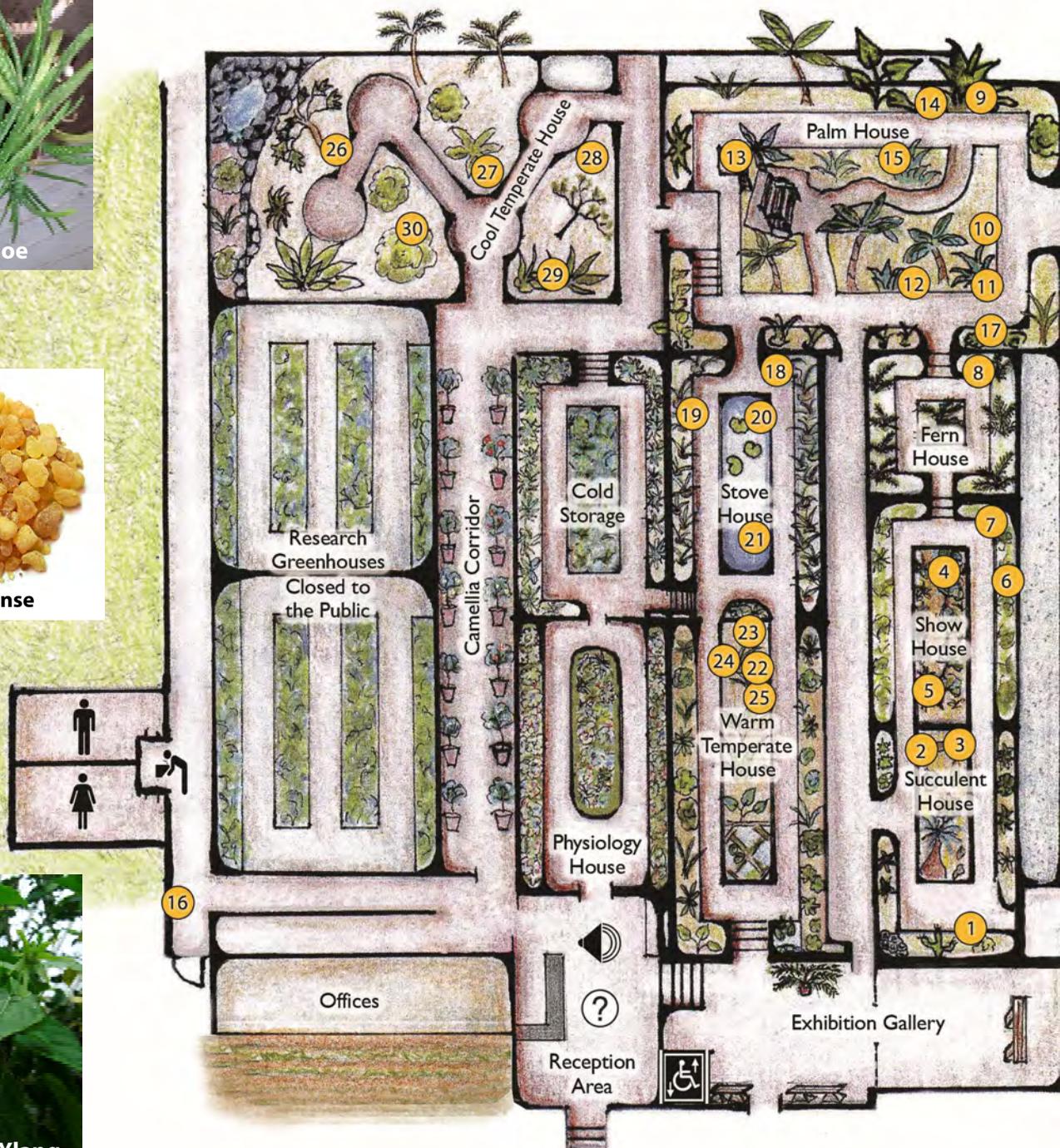
Among the fragrant plants in this green house is the popular Indonesian ylang ylang, *Cananga odorata* (4). This essential oil is used extensively in perfumery and high end perfumes like Chanel No. 5.

Earl Grey tea is flavored with oil of Bergamot, obtained from the leaves of *Citrus bergamia* (5). Rosemary, *Rosmarinus officinalis* (6), a native of the Mediterranean region, is a member of the mint family, the Lamiaceae, which includes many species with aromatic leaves.

The laurel family, Lauraceae, is also known for having pungent and aromatic foliage. Members of this family have been important to humans since the times of the Greeks and Romans, when victorious soldiers and athletes received crowns of *Laurus nobilis* (7). Today, bay laurel or bay leaf is used as a culinary herb.



Numbers on this map correspond to locations of plants mentioned in the text.



Fern House

Though few economically important plants are found among the primitive fern and gymnosperm families growing here, the stems of some tree ferns are harvested for the starch deposits in their trunks, and their "bark" was once heavily used in orchid growing. *Podocarpus* (8) species were heavily exploited for their popular fine-grained wood. In 1982 the *Podocarpus* national Park was created in Ecuador to protect the largest remaining forest of three *Podocarpus* tree species. Other gymnosperms are important in the wood and paper industry.

Palm House

Some of the most popular caffeinated beverages and foods are derived from plants that are being grown in this tropical environment. The lowland robusta coffee, *Coffea canephora* (9), produces a lower quality bean than *Coffea arabica* (28) (growing in the Cool Temperate House), but since it tolerates hotter conditions, robusta coffee has become a major cash crop for many tropical developing nations.



Chocolate, the "food of the gods," is made from the seeds within the cacao pods. *Theobroma cacao* (10) is native to the Amazon and possibly Mexico, where the seeds were used as currency by the Aztecs.



Similar to cacao, the seeds of the cola nut tree, *Cola nitida* (11), are extracted from pods and processed to yield cola flavoring, also very rich in caffeine.

Natural rubber is made from the sap of the Brazilian rubber tree, *Hevea brasiliensis* (12) making it important to manufacturing and transportation industries. Although grown on plantations throughout the tropics, synthetics now dominate the market.