

Kew Gardens



The iconic Palm House.

The Royal Botanic Gardens, Kew, usually referred to simply as Kew Gardens, cover an area of over 300 acres on the south bank of the Thames River in a pleasant and wealthy suburb in south-west London, England. The Gardens, designated a World Heritage Site in 2003, maintains the largest plant collection in the world, with more species than any other garden in the world, along with water features, greenhouses, a large arboretum and historic buildings.

The property has a long history. Originally it was an 11-acre pleasure ground within the larger Richmond Gardens, where members of the Royal Family maintained residences. In the late 1760's garden designer Lancelot 'Capability' Brown replaced the old formal allees, decorative buildings, and ridged plantings with his landscape of rolling lawns, lakes and strategically placed clumps of trees, creating the foundation for the future botanical garden. The Garden's vast collections, gathered from the farthest corners of the earth, are a legacy of Queen Charlotte who had developed a great interest in botany, and

sought out unusual new plants and exotic flowers. Sir Joseph Banks, a wealthy entrepreneur and natural history enthusiast who had traveled with Captain Cook on his south seas voyages, became the *de facto* director of the garden, organizing almost all aspects of its planting, maintenance, and operation. It became his personal challenge to obtain for Kew all the latest botanical discoveries, before any other garden in Europe did, arranging and sponsoring collectors to ensure a supply of new and exotic material for the garden from the rapidly expanding Empire and beyond. Kew became prominent as a center of scientific research because of his connections with the Royal Society, of which he was president for 41 years. After his death in 1820, the gardens slowly fell into a state of disrepair. In 1840 the gardens were handed over to the state, and later the royal family donated some surrounding land, so Kew regained its status as a center of botanical research and became a fabulous public collection, and expanded greatly in size. In 1841 Sir William Hooker was named as the first official director of the Botanical Gardens, so that year is generally regarded as the foundation of the Royal Botanic Gardens, Kew.



The grounds are landscaped with flowers amid the trees.

The Gardens today are a diverse mix of landscaped lawns, formal gardens, and greenhouses to display plants from across the world. But Kew is much more than one of the world's finest showpiece gardens. It is an internationally respected center of scientific excellence, identifying and classifying plants, researching their structure, chemistry and genetics; collecting and conserving endangered species; maintaining reference collections and sharing all this knowledge throughout the world. In addition to its botanical research and conservation programs, Kew Gardens is a training ground for professional gardeners and a major tourist attraction, with well over a million visitors annually.



Kew Gardens contains a diverse mix of landscaped lawns, formal gardens, greenhouses, and other buildings.

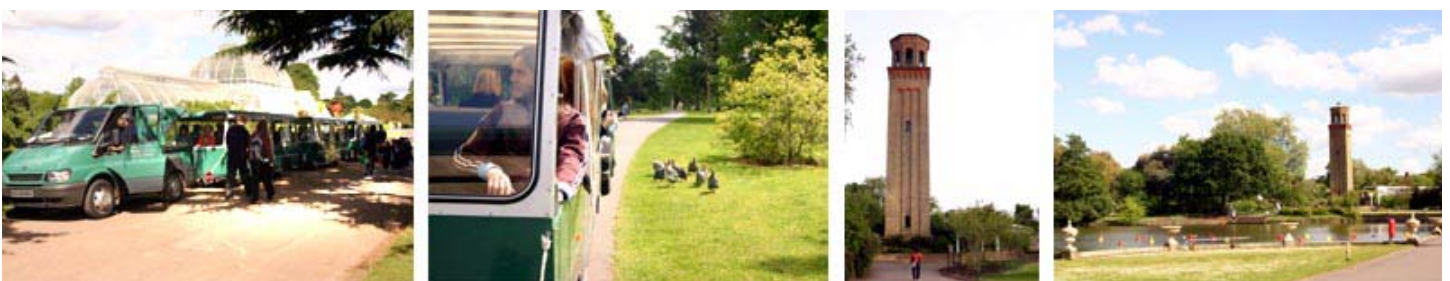
Although there are several gates, most people enter through the Victoria Gate where the visitor center is located. Just outside the gift shop is the Campanile, looking like an Italian bell tower. It was built to disguise the chimney for the boilers that heat the Palm House. Smoke from the boilers was led away through pipes in a tunnel to the tower. After the Palm House was renovated, the boilers were moved from beneath the house to behind the Campanile, and the tunnel is now used to pipe the hot water to



There are several gates for entry into Kew Gardens, including the Victoria (L), Main (C), and Lion Gates (R).

the greenhouse's heating system.

Visitors to Kew can either join in a guided tour, follow one of several themed trails, or wander around the attractions at their own pace. The Kew Explorer is a 72-seater, 3-car 'people mover' with a driver providing commentary as you travel. An additional fee gives you a wrist band which allows you to hop on and hop off all day, with 20 minutes between each pick up. Tickets are available at the main gates or



The Kew Explorer takes visitors around the perimeter of the gardens (L). The Campanile & Palm House Pool (R).

at one of the stops. The 40-minute circuit passes by every major point of interest, with 8 stops spread throughout the gardens. On our virtual tour, we'll visit the greenhouses first, then other buildings in an approximately clockwise route from the Victoria Gate, and follow up with a walk around the grounds and gardens.

Palm House

One of the functions of English greenhouses in Victorian times was to display the exotic range of plants and flowers that flourished in the British Empire. The Palm House, built between 1844 and 1848, was the first large-scale structural use of wrought iron. It is 363 feet long, 100 feet wide, and 66 feet tall at its highest point. Its design was influenced by that of other glass and metal structures during the Victorian period, including the Crystal Palace erected for the Great Exhibition of 1851. By the 1950's it was in disrepair and was restored in 1955-57, and again in 1984-88. This iconic building is one of the first you see when you come through the Victoria Gate. The humid interior is filled with foliage of palms, of course, but many other plants, too. The center planting area contains the tallest specimens which need the extra height of the dome. Otherwise, beds are organized by continents to show many of the palms and ferns of the world, including the peach palm, coconut palm, the fast growing queen palm, and the interesting *coco de mer* or double coconut, from the Seychelles and Maldives, with the largest seed in the world. Other plants of economic importance displayed in the palm house include banana, coffee,



The distinctive Palm House is Kew's most recognizable building. It is filled with palms and other endangered plants from tropical rainforests, including the coco-de-mer, the plant with the world's largest seed.

cacao, pepper and rubber. There is a marine display in the basement.

Outside on the terrace are benches which look across the flower beds to the Palm House Pond. The



The Queen's Beasts in front of the Palm House (L), the Palm House Pool (C) and the view in midsummer across the Pond to Museum No. 1 (R).

ornamental, rectangular pond was designed in 1845 to reflect the Palm House in its waters. The fountain of Hercules wrestling the serpent river-god Achelous sits in the middle. The benches are interspersed with replica statues of ten of the heraldic Queens Beasts (the originals were carved to stand outside Westminster Abbey during the Queen's Coronation) to illustrate the royal lineage.

Temperate House

At 52,530 ft², the Temperate House is the largest public glasshouse at Kew and twice the size of the Palm House. Once the largest glasshouse on earth, the Temperate House is the world's largest surviving Victorian glass structure. Work began in 1860, and the center block and octagons were completed by 1862. But the project was over budget, so work was halted. It took another 36 years to complete (and at three times over the original estimated cost). It was planned to be part of a new grand entrance to the gardens, but all that changed when the new railroad station was built in a different location, and the entrance had to be made at what is now Victoria Gate. That left the Temperate House set apart in the middle of the Arboretum. The Temperate House was renovated in the early 1980's, apparently to the delight of some of the plants including a king protea (*Protea cynaroides*) that finally bloomed for the first



The Temperate House, the largest greenhouse at Kew.

time in 160 years!

This structure houses tender woody plants from the world's temperate regions. The plantings are organized geographically, with tall subtropical trees and palms, as well as tree ferns, and other plants in Pacific, Australian, and American collections, as well as economic plants in the large central rectangular portion. The world's largest indoor plant is the Chilean wine-palm (*Jubaea chilensis*) in the center of the Temperate House. It was grown from seed in 1846 and is now 52 feet high (and a replacement is ready when it hits the roof). The North Octagon houses plants from New Zealand and Lord Howe Island, the South Octagon is home for South African proteas and heaths. The South Wing holds collections of African plants, while species from temperate Asia are in the North Wing. Other wings contain plants



The Temperate House is full of tender woody plants from subtropical and warm temperate regions worldwide.

from Southeast Asia, China and Japan, Africa, and the Mediterranean.

The plant collection includes several endangered species (many being propagated for reintroduction to their native lands), plants of economic importance, and collections of various types. The rarest plant at Kew is the cycad *Encephalartos woodii*, one of the last surviving specimens in the world, which was presented to Kew by the Natal National Park. The one plant that was ever found in the wild, a male, is now extinct, so the 500 or so plants that now grow in botanic gardens around the world have been propagated by cuttings. (There is some speculation that it may have been a natural hybrid of two other



Among all the other interesting plants, including blooming proteas (L), is *Encephalartos woodii*, a rare cycad extinct in the wild.

species, meaning it was always quite rare in the wild.)

Princess of Wales Conservatory

The third major conservatory was opened in 1987 by Princess Diana. The modern-looking, stepped and angled glass structure with most of its space below ground was designed to be as energy efficient as possible and take advantage of solar energy. It has computer-controlled misters, ventilation, heating and cooling to keep conditions optimal for the different plants found in each section. This complex building houses 10 different tropical environments, ranging from arid desert to moist rainforest. There are two main climate zones, the Dry Tropics and Wet Tropics, and eight more different micro-climates, each for the special needs of a particular plant group. Cacti and succulents of all sizes and shapes are found in one area, while orchids, ferns and tropical foliage plants are housed in other areas. Plants are



Kew's most complex greenhouse is the Princess of Wales Conservatory, with plants from the wet tropics (L) and dry tropics (C and R).

staged as naturally as possible, with ferns clinging to dripping rock faces and climbers on columns. Paths through the greenhouse are at different levels so visitors can experience the plants in different ways. There are two 50,000 gallon storage tanks beneath the conservatory for holding rainwater collected from the roof slopes that is filtered and used for irrigation.

Alpine House

This new structure near the Princess of Wales Conservatory and at the north end of the Rock Garden



The Alpine House.

houses just a few very tempermental plants that require very specific conditions to thrive.

Water Lily House

This small classic glasshouse was built next to the Palm House in 1852. It contains a giant pool filled with big green lily pads up to 4 feet in diameter. The inner walls of the house have raised beds filled



The Water Lily House, with the central pool filled with large lily pads and surrounded by other interesting plants.

with unusual tropical and water plants, including pitcher plants and other carnivorous plants, papyrus, and a number of plants of economic importance such as rice, banana, sugarcane, lemongrass and taro.

Evolution House

This small glass building showcases 3500 million years of evolution of plant life on earth. The story begins 3.8 billion years ago with the barren, lifeless landscape that existed then and progresses from the first life forms to land plants. The Evolution House concentrates on three major periods of plant evolution and features cycads,



The Evolution House.

horsetails, and other plants from the Silurian, Carboniferous and Cretaceous periods.

Marianne North Gallery

This gallery, which was opened on June 9, 1882, houses a unique collection of 832 oil paintings by Marianne North, a remarkable Victorian lady who visited many countries in North and South America and many parts of Asia between 1871-85 in order to paint plants in their natural setting. The building, which was donated with the paintings by Miss North, was designed by James Fergusson and demonstrates



The Marianne North Gallery and some of her 832 botanical paintings in it.

the use of natural lighting as employed in ancient Greek temples. She was in charge of hanging the paintings herself, arranging them in geographical order over a dado of 246 vertical strips of different timbers. The walls are virtually solid with incredible paintings showing over 900 species of plants. Other art galleries at Kew include the White Peaks Exhibition Space and the Kew Gardens Gallery in Cambridge Cottage.

Ruined Arch and Temple of Bellona

This arch, built in 1759-60, was designed as a mock Roman ruin by Sir William Chambers. Such 'follies' were very fashionable during the eighteenth century as ornamental garden features. This arch however, also served a practical purpose in carrying a carriage-way across what is now Kew Road. The arch has deteriorated over the centuries and is now more ruinous than when it was built. The Doric temple, built in 1760, is named after the Roman goddess of war and contains plaques bearing the names of regiments which distinguished themselves in the Seven Years' War (1756-63). There are a number of



The Roman Arch (L and C) and the Temple of Bellona (R) both were constructed in 1760.

other temples on the grounds.

Chinese Pagoda

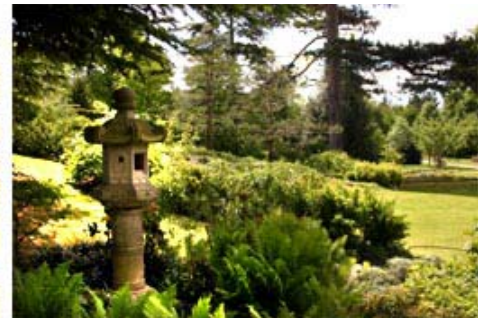
The Chinese Pagoda is arguably Kew's most recognizable structure. The octagonal brick structure was built in 1761-62, to imitate a Chinese Ta. Each story is edged with a projecting roof in the Chinese style. Originally these were covered with ceramic tiles and adorned with large dragons; these were reputedly sold by George IV to settle his debts. The lowest of the ten tapering stories is 49 feet in diameter and the whole structure is 163 feet tall. There is a staircase of 253 steps in the center of the building. It is



The Chinese Pagoda, one of Kew's most famous features.
open to the public (for an additional admission fee) during the summer months.

Japanese Temple, Chokushi-Mon (the Gateway of the Imperial Messenger)

Standing near the Pagoda there is a replica of part of a Japanese temple. Built in 1910, it is a four fifths size copy of the Karamon (Chinese gate) of Nishi Hongan-ji in Kyoto. It was originally built for the Japan-British Exhibition, held in London in 1910, after which it was dismantled and rebuilt in Kew Gardens. The traditional Japanese building built in the style of the late 16th century is surrounded by a Japanese landscape in three distinct areas, each depicting one of the many different aspects of Japanese gardens.



The grounds around Chokushi-Mon are landscaped in Japanese style.

Queen Charlotte's Cottage

This small house with a thatched roof was a wedding gift to Queen Charlotte in 1861. It was used by the royal family for picnics and was also used by Queen Victoria until she presented it to the public upon her Diamond Jubilee in 1897. The building has been restored to its original state. The interior is only open weekends and bank holidays and hosts art exhibitions, such as one of eighteenth-century botanical art by Frances Bauer, who was a tutor to Queen Charlotte and her children. It is surrounded by 37 acres of woodland and meadow that is part of the conservation area concentrating on British species. Bluebells grow in abundance during early spring surrounding the oak, poplar, birch and Douglas fir trees.

The decorative buildings at Kew reflected the Georgians' curiosity about the wider world that they were in the process of discovering. On the expeditions to remote places to collect for the royalty, wild animals were also brought back with the plants. This practice is to be revived, too, on the grounds of Queen Charlotte's Cottage. The plan is to bring wallabies in, along with a flock of sheep to mow the grass.

Japanese Minka

This Japanese wooden country house called a minka was originally erected in around 1900 in a suburb of Okazaki. It was donated to Kew as part of the Japan 2001 Festival. Japanese craftsmen reassembled the framework (no iron nails are used) and British builders added the mud wall panels. It is surrounded



The authentic Japanese minka is surrounded by the bamboo garden.

by the **Bamboo Garden**.

Climbers and Creepers

This is an interactive botanical play zone for kids aged 3-9. This is supposed to make serious botany



Children play at the imaginative and interactive Climbers and Creepers exhibit.

great fun and teach them about plants and their relationships with animals and people.

Kew Palace

Kew Palace is the oldest building within the Royal Botanic Gardens, Kew, built in 1631. This plain structure, once called the “Dutch House”, was purchased by George III in 1781 as a nursery for the royal children. It is open seasonally to see the ornately decorated and furnished rooms (as it would have been in 1804-5), and various unique objects belonging to the palace’s inhabitants. It is the smallest of



Kew Palace, front (L) and back (C) and the formal boxwood-edged gardens in the Queen’s Garden behind the building (R).

the London Royal Palaces.

Behind the four-story brick building is the 17th century style **Queen’s Garden** and the herb garden. Even though the garden was actually conceived in 1959 and opened ten years later, the plants here are

exclusively those grown in Britain before and during the 17th century. The plants are labeled with the common name in the 17th century and a quotation from a herbal (plant book). The Garden contains a chamomile chair, intricately plaited laburnums forming an arch, pleached hornbeams making a hedge on tall stems, a gazebo, and a wrought iron pillar from Hampton Court Palace. Behind the formal garden is the **Bee Garden**, full of flowers and three styles of beehives,



The laburnum arch in spring (L), pleached hornbeams making a hedge on tall stems (C), and the Bee Garden (R).

from simple logs and basketware skeps to modern wooden hives.

Orangery

Designed to house citrus trees in the winter (except the light levels inside the building were too low to grow plants, even after glass doors were added at either end in 1942), this 1761 building is now is a

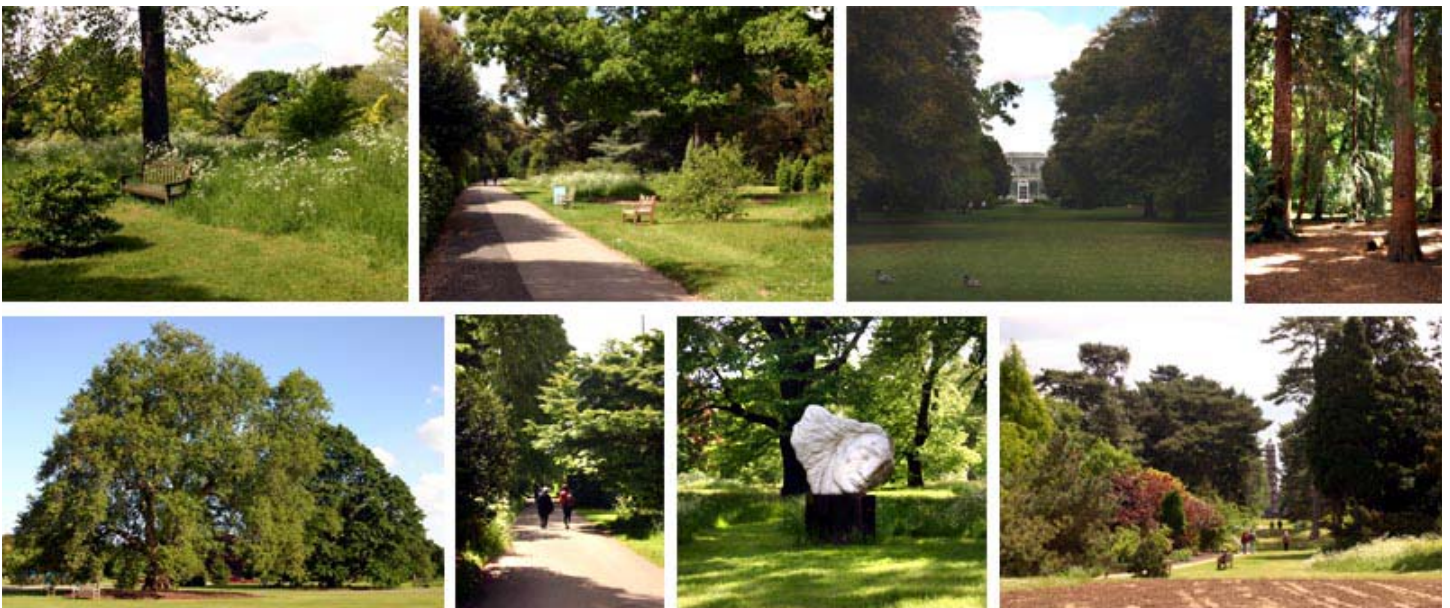


The Orangery.

restaurant.

Arboretum / Grounds

Much of Kew is an arboretum with magnificent old trees — some that date as far back as the 18th century



The arboretum and informal grounds, with paved and grassed walks, huge old trees, and splendid vistas.

— as well as newly planted rare specimens. There are collections of different genera, with plants from Japan, Australia, the Middle East and North and South America. There is a 225-foot tall flagpole hewn from a single Douglas fir trunk presented to Kew by British Columbia, Canada to celebrate the province's centenary in 1958. Woodpeckers and rot have taken their toll on this massive pole, so it's actually in the process of being replaced. Many areas are devoted to specific plants, such as the **Berberis Dell**, **Cherry Walk**, **Holly Walk**, and **Pinetum**. The later is a collection of pine trees started in 1870. The **Woodland Glade** is noted for its giant redwoods and other majestic conifers, underplanted with shrubs for summer and late autumn color. There are both long and short designated walks throughout the property on both paved trails and grassed areas, and many gorgeous vistas through the trees. There are several heritage trees, specimen trees dating from as far back as the early 18th century.

The Lake, which despite appearances, is artificial. It was started with the present Pinetum and extended when the Temperate House was built. Moisture-loving trees and shrubs are planted all around the



The Lake, surrounded by lawns filled with blooming chamomile (L), and surrounded by plants including the giant-leaved *Gunnera* (C) and iris and cattails (R).

lake.

There are many other designated gardens and plant collections sprinkled throughout the grounds. The walled **Duke's Garden** contains familiar shrubs and herbaceous perennials around large lawns, and an exotic border where gardeners experiment with plant hardiness. The **Gravel Garden** shows a wide range of attractive plants that require less water than traditional English garden choices. The **Duchess Border** carries the lavender species collection, the **Aquatic Garden** has waterlilies and aquatic plants in various heated tanks, and **Woodland Garden** has a natural design with hellebores and peonies beneath a deciduous tree canopy.

Many of the gardens are devoted to single groups of plants, such as lilacs, roses, rhododendrons, azaleas, magnolias and bamboo. In the spring, the **Rhododendron Dell** comes to life with over 700 specimens blooming. Sir Joseph Hooker started this spectacular rhododendron collection in the 1850's



The Rhododendron Dell in spring.

with specimens gathered on his Himalayan expeditions.

The **Rock Garden**, near the Princess of Wales Conservatory and Alpine House, is a jumble of extra-

large stacked rock cubes, with a plethora of different plants that need well-drained soil. It was first designed in 1882 to look like a Pyrenean mountain valley, but is now built from sandstone which retains more water than the original limestone. It was also redesigned to include a central bog garden and cascade. There are six global regions represented, with alpines, Mediterranean plants and woodland



The Rock Garden, built from sandstone blocks, also has a central bog garden and cascade (top R). and moisture-loving plants included.

The **Order Beds** are a “living library” of flowering plants, arranged systematically in family groups (so they can be easily located for study by botanists). There are also vegetable plots planted by Kew’s own



The Order Beds house thousands of perennials arranged taxonomically in botanical family groups, with the adjacent vegetable plots maintained by Kew’s horticulture students.

students as part of their course.



There are several beds filled with annuals and perennials amid the manicured lawns. Informal beds of annuals, perennials and tropicals are set in the sweeping lawns in places.

The **Grass Garden** has over 600 varieties of grasses, which, of course, look best in the late summer and fall. Designed in 1982, it includes British native grasses, tropical and temperate cereals, and specimen lawns showing different mixes of grass seed for different purposes.



The Grass Garden in spring (L) and summer (C and R).

Hidden between the Princess of Wales Conservatory and the main gates, the cottage-style **Secluded Garden** was designed to appeal to all the senses. The plants in this garden include a palette of colors encompassing both subtle and vivid, sounds of wind, water and bird-song, scents ranging from delicate floral fragrances to the evocative aroma of autumn leaves and the contrasting textures of foliage, wood and stone. Poems on sight, scent, hearing and touch augment the plantings. A little stream runs through



The Secluded Garden includes plants with differing textures (L), a stream meandering through the area (LC), and a spiral fountain (RC) surrounded by pleached lime (linden) trees (R).

the garden, with a wooden bridge crossing it. The garden is filled with lavender, roses, apple, pear, quince, lilies, iris and willow. There is a small conservatory housing a small collection of orchids. A spiral fountain is surrounded by pleached lime trees (lindens to Americans).

Library and Archives

The library and archives at Kew are one of the largest botanical collections in the world, with over half a million items, including books, botanical illustrations, photographs, letters and manuscripts, periodicals, and maps. The plain building is not on the gardens' grounds, but in the adjacent neighborhood.

Behind the Scenes

In order to provide the spectacular specimens on display in the public areas and continue to be a world leader in conservation and botanical research, there are many buildings and greenhouses devoted to research and plant production that are not open to the public. Thousands of plants are raised for research and exhibition in the **Nursery Glasshouses**; wild-collected or imported plants are held in the **Quarantine Glasshouse** to be sure that foreign pests or diseases are not introduced to the gardens; and the **Micro Propagation Unit** helps conserve rare species of flowering plants and mosses.



The production greenhouses where plants for research and props are tended. Inside Jodrell Laboratory (lower R). The **Jodrell Laboratory**, near the Aquatic Garden, is where plant anatomy, cytogenetics and other laboratory-based research is carried out.

The **Sir Joseph Banks Centre for Economic Botany** houses the Economic Botany Collections, of over 76,000 species of plants and samples of their products that are of economic importance to the world. It includes 32,000 samples of wood, thousands of bottles of oils and other plant based-artifacts and oddities. It is housed in the Joseph Banks Building, a high-tech, earth-covered complex on a three acre site.

The **Herbarium** has over 7 million samples representing 98% of the total plant life on the planet collected over many years. Housed in an 18th century building originally named Hunter House, it has been expanded several times to contain the growing collections. Plants are also identified, classified and named here. With the Harvard University Herbaria, and the Australian National Herbarium, they co-operate in the IPNI (International Plant Names Index) database to produce an authoritative source of information on botanical nomenclature.

Museum No. 1

Across the Palm House Pond from the Palm House is a building known as “Museum No. 1” which was opened in 1857 and renovated in 1998. The upper two floors are now an education center and the ground floor houses the “Plants + People” exhibition which highlights the variety of plants and the ways that people use them.



Museum No. 1.

Food Service and Gift Shops

Kew has four restaurants and coffee shops, but picnics are welcome. There are picnic areas in secluded wooded clearings and picnics are allowed on any grassed area, but not in the greenhouses or planted areas.

There are two gift shops at Kew, at Victoria Gate and White Peaks. They offer a wide range of merchandise including books, seeds, pens, bookmarks, and foods.

– *Susan Mahr, University of Wisconsin-Madison*

Getting There

Kew Gardens is accessible by car, but because of the difficulty of driving in London and limited parking, public transportation is a much better option. The nearest Tube station is Kew Gardens (District Line, Richmond branch), which lies in zones 3 and 4. The journey from central London takes around 40 minutes, with The Gardens just a 5-10-minute walk from the station through a pleasant residential area. Overground train stations are also convenient, and several buses go directly to Kew from the two railway stations, Kew Bridge and Kew Gardens.

Admission to the Gardens is £11.75 for adults, and an additional £5 entrance fee for Kew Palace and £3 for the Pagoda (both open only seasonally).

Additional Information:

- 🟩 Royal Botanic Gardens, Kew – the official website of the Gardens at www.kew.org/
- 🟩 Explore Kew Gardens – the Official Virtual Tour of the Gardens at www.explore-kew-gardens.net/