

EXPLORING THE WORLD'S TROPICAL PLANTS IN THE PALM HOUSE AT KEW

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We can gain a fascinating insight into the current state of the world's plants, how this impacts on us and what we anticipate the future will hold in Kew's iconic Palm House (Fig 1).

A Palm house is a greenhouse that is specialised for the growing of palms and other tropical and subtropical plants (https://en.wikipedia.org/wiki/Palm_house).



The Palm houses require constant heat and were built as status symbols in Victorian Britain (Fig. 2). The engineering technology behind Kew's iconic Palm House was borrowed from ship



Fig.1. The Palm house in Kew' gardens. building – and it can be seen that the design is essentially an upturned hull. The Palm House was built in the 1840's by Richard Turner designed by Decimus Burton (Fig. 3) and Nicole Burton and is considered the world's most important surviving Victorian iron and glass structure. It was designed to accommodate the exotic palms being collected and introduced to Europe in early Victorian times and now represents one of the most threatened habitats on earth (<https://www.youtube.com/watch?v=HMaomjhGoAc>).

Fig. 2. Queen Victoria.
(1819–1901)



"Decimus Burton and Richard Turner ((**Fig. 4**)) designed the much larger Palm House in London's Royal Botanic Gardens at Kew, where they were the supervising architects. Palm House is 363 feet long by 100 feet wide and rises to a height



Fig. 3. Decimus Burton.
(1800-1881)

of 66 feet. Besides educating visitors in the natural world, one of the functions of English greenhouses at the time was to display the exotic range of plants and flowers **Fig. 4. Richard Turner** that flourished in the British Empire." [11, p. 129].

(1798–1881)

Temperate House is a series of five pavilions built on a raised earth mound, situated on axis with the Pagoda. Construction commenced in 1859, with its centre block and octagons complete by 1863; this was followed in 1897 and 1899 by the North and South blocks. Twice the size of the

monumental Palm House at 4,880 square metres and extending to 19 metres in height (Fig. 1, 5, 6, 7), the Temperate House is the world's largest Victorian glasshouse (<https://www.donaldinsallassociates.co.uk/nurturing-nature-restoring-the-temperate-house-at-kew/>).

Thus, The Palm House is the centerpiece of Kew Gardens. Its curvilinear structure is a classic example of Victorian glasshouse design. Built between 1844 and 1848, it was constructed to house tropical trees, shrubs, and palms. Its location was determined by Burton who was adamant that it should stand by the body of water then known as George III's lake (Fig. 1) so the reflection of the building could be seen in the water. The artist and garden architect, William Andrews Nesfield, landscaped the grounds of the Palm House [14], making it the focal point of two long avenues – Pagoda Vista and Syon Vista (http://www.architectureweek.com/2002/1002/culture_1-2.html).



Fig. 5. The monumental Palm house. There are three different sections within Palm House – the south wing with plants and trees from Africa and islands in the Indian Ocean, the central dome containing palms from the Americas, and the north wing where you'll find palms, fruits trees, and other flowering plants from Asia, Australasia, and the Pacific. One last thing to see inside Palm House is the underground aquarium. Four marine habitats are recreated inside the aquariums – coral reefs, estuaries, mangrove swamps, and rocky shorelines. Jellyfish, tropical fish, a seahorse intent on playing hide-and-seek, and many other sea creatures inhabit the aquariums down here (<https://www.thewanderblogger.com/palm-house-royal-botanic-gardens-london/>).



Fig. 6. Jurassic cycad. King of the Palm House, the huge Jurassic cycad, *Encephalartos altensteinii* (i) (Fig. 6), was collected by Kew's first plant hunter Francis Masson, from the Eastern Cape region of South Africa in the early 1770s. Masson was commissioned by Sir Joseph Banks to step aboard the *Resolution* and join Captain Cook's second voyage around the globe. This ancient plant, commonly known as the Eastern Cape giant cycad, arrived back at Kew Gardens in 1775 and has thrived in Kew's majestic Palm House since it was built in 1848. This cycad was one of the first living collections to arrive at Kew Gardens, kick-starting a legacy which makes the Gardens what they are today - a living collection of over 30,000 plant species [17].



Fig. 7. Inside the Palm house. repotting-Kew-Gardens.html).

The Palm House recreates a rainforest climate (Fig. 7), a living laboratory supporting a diversity of plants from the tropical regions of the world, all under one roof. The plantings simulate this multilayered habitat, with canopy palms and other trees, climbers and epiphytes down to the shorter understory plants and dwarf palms. Many plants in this collection are endangered in the wild, some even extinct. There are many species here studied by Kew scientists for research into medicines.

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Fig. 8. Laboratory for foreign language learning. From Australia there are macadamias, from South America Brazil nuts (https://www.arthurroadlandscapes.co.uk/blog/2018/3/9/the-palm-house-at-kew).

At last. Our project has some project members. And we, as project members added a new task to the project – to taste tropical fruits (kiwi, avocado, kiwano melon, mango and passion fruit –maracuyá or grenadille) from the "imaginary" tropical regions (Fig. 8) in the conditions of a laboratory for foreign language learning of Faculty of Science Education and Ecology our university.

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