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Botanical Gardens: History and Roles

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**In this article we will discuss about the
History and Roles of Botanical Gardens.**

History of Botanical Gardens:

The history of gardens dates back to our ancient Indian History, where such gardens have been mentioned in our epics like Mahabharata, Ramayana etc. Our kings and emperors grew gardens around their palaces for aesthetic beauty and their gardens included plants of different kinds of flowers, fruits and vegetables.

In other parts of the world, the Hanging Gardens of Babylon are considered to be the most ancient wonders. The Romans maintained gardens as sources of medicine and even the Chinese, Persians and Aztecs had shown interest in gardens, which grew plants with beautiful flowers and those, which yielded perfumes.

The Hanging Gardens of Babylon

The Hanging Gardens of Babylon, considered to be one of the Seven Wonders of the Ancient World, were the most revered and awesome structures in all of history. They were built by the ruler Nebuchadnezzar, the son of Nabopolassar, between the years of 604-562 B.C. He built it to please his homesick wife Amyitis, who was from Media and he had married her to make an alliance between Media and Babylonia. She longed for the meadows and mountains of her homeland. Although the Hanging Gardens no longer exist, the idea of such a magnificent feat of engineering still fascinates people today.

The garden had exotic flourishing plants, which were cultivated above ground level. These plants were imported from foreign lands and may have included cedar, cypress, myrtle, juniper, almond, date palm, ebony, olive, oak, terebinth, nuts, ash, firs, nightshade, willow, pomegranate, plum, pear, quince, fig and grapevine. The gardens formed a quadrilateral shape. The plants were suspended over the heads of observers on terraces and the brilliantly colored trees and flowers dangled and draped over the terraced walls, creating a lush and magical environment. Arches were underneath these terraces. Since Babylon rarely received rain, the gardens had to be irrigated and probably the technique of hydroponics was used for irrigation, which involves irrigation with water containing nutrients, with no use of soil, as excavations have found an elaborate tunnel and pulley system, which brought ground water to the top terrace. Water was dispersed by means of a chain of pumps. Thus, the Hanging Gardens of Babylon were an impressive example of architecture.

It was during the 16th century, that the first botanical garden of the world was established by an Italian Professor of Botany, Luca Ghini (A.D. 1490-1556) at Pisa, Italy in 1543. He was the director of this garden and was later succeeded by Andrea Caesalpino (1554-1558). It was during this century that the herbalists grew medicinal plants collected from different parts of the world in their gardens.

Other important botanical gardens established during this century include the following:

(a) Padua Botanical Garden which was established by Professor Francis Bonafede at Padua, Italy in 1545 and is considered to be the oldest Botanical Garden and is named "**Orto Botanico**". It covers an area of about 20,000 square meters and has a large herbarium and a library attached with it.

Some of the major plants of this garden include *Cedrus deodora*, *Ginkgo biloba*, *Mesembryanthemum*, *Platanus orientalis*, *Robinia pseudoacacia*, etc. This garden has the portraits of over 600 botanists that have been displayed over here.

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(b) University Botanical Garden, which was established by Luca Ghini at Florence, Italy in 1545. It was founded on 1st December, 1545 when Grand Duke Cosimo dei Medici purchased the land from the Dominican sisters. The traditional name of this garden is "**Giardino dei Semplici**" because of the fact that it was used to cultivate and raise medicinal plants.

The garden was later improved and embellished with the 18th century collections and presently has its own green houses and hot houses for tropical plants, medicinal plants and some superb examples of sequoid trees, cedars and oaks from the early nineteenth century. There are even sections dedicated to medicinal plants, cactuses and carnivorous plants which are very interesting from the didactic point of view.

(c) Vatican Garden, established by Michele Mercati at Rome in 1556.

(d) Bologna Botanical Garden established at Bologna, Italy in 1568 with Ulisse Aldrovandi (1567-1605) as its first director. Having being transferred various times, the Gardens were finally located in the old Collegio Ferrario with over 5,000 specimens of exotic and local plants.

This garden now has three different green houses, two of which houses tropical plants, especially ferns, Orchideaceae, Bromeliaceae and trees of nutritional interest, while the third houses a collection of succulents. It also has various medicinal and aromatic plants and other ornamentals.

(e) Leiden Botanical Garden, which was established in 1587 at Leiden, Netherlands. The famous herbalist Carolus Clusius was its first director and contributed a lot to the growth of this garden. The first green house was established in this garden in 1599 for the protection of plants, which were introduced from Cape of Good Hope. This garden mostly includes the plants that were collected by the East India Company.

(f) Botanical Garden, Heidelberg, Germany established in 1593.

(g) Montpellier University Botanical Garden at Montpellier, France, which was founded in 1593.

During the 17th Century, medicine had shown tremendous development and a large number of Botanical Gardens were further established in different parts of the world including various universities, mainly with the purpose of displaying for medical use.

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Some of the important Botanical Gardens of this century are as follows :

(a) Botanical Garden of Strasbourg, France, established in 1619.

(b) Oxford University Botanic Garden, Oxford, England, which was initiated in 1621. This garden

possesses the first green house ever established in England, which was founded in 1734.

(c) National Museum of Natural History, Paris, France established in 1635.

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(d) Jardin des Plantes, a botanical garden established in 1640 at Paris for the purpose of growing all kinds of medicinal herbs.

(e) Botanical Garden of Groningen, Netherlands established in 1642.

(f) Botanischer Garden in Berlin, Germany, which was founded in 1646, and A.W. Eichler, Adolf Engler and L. Diels were its directors and is one of the greatest botanical gardens.

(g) Botanical Garden of Uppasala, Sweden founded in 1655 by O.J. Rudbeck at Sweden. This garden has the privilege of the works of Linnaeus, who worked at this garden from 1741 to 1777.

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(h) Royal Botanic Garden, Edinburgh, Scotland, which was founded in 1670 with J. Sutherland as its first director, is famous for Rhododendron and Azaleas. The Rock garden present over here is one of the first in the world, which is remarkable for its Himalayan alpine plants. This garden also has a glass house, a herbarium and a library.

(i) The Chelsea Physic Garden, London, England, was established in 1673, by the Society of Apothecaries.

(j) Amsterdam Botanical Garden, Netherlands, founded in 1682.

(k) Botanical Gardens of Tokyo Imperial University, Tokyo, which was established in 1684.

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During the next three centuries more famous botanical gardens were established. Some of the important ones are as follows:

Name of the Garden	Place	Year of establishment
Botanic Garden of University of Moscow	Moscow, Russia	1707
Druggist's Garden of St. Petersburg renamed as V.L. Komarov Botanical Institute of the Academy of Sciences	Leningrad, Russia	1713
Botanical Garden of Philadelphia	Philadelphia	1713
Botanical Garden of Vienna	Vienna, Austria	1754
Jardin Botanico de Madrid	Spain	1755
Royal Botanic Garden, Kew	Kew, England	1760
Botanic Garden of Cambridge University	Cambridge, England	1762

Botanical Garden of Coimbra	Portugal	1773
Indian Botanical Garden	Kolkata, India	1787
The Jardim Botânico de Rio de Janeiro	Rio de Janeiro, Brazil	1808
Universitets Botaniske Have	Oslo, Norway	1814
Botanic Gardens of New South Wales	Sydney, Australia	1816
Botanic Garden et Buitenzorg	Java	1817
Conservatoire et Jardin Botaniques de Geneva	Geneva	1817
Botanical Garden of Cape Town	Cape Town	1848
Government Botanical Garden, Kingston	Jamaica	1857
Botanical Garden of Catania (Orto Botanico dell'Universita)	Catania, Sicily	1858
Singapore Botanic Gardens	Singapore	1859
Missouri Botanical Garden	St. Louis, USA	1859
Hanbury Botanical Garden	La. Montola, Ventimiglia, (Liguria), Italy	1867
Arnold Arboretum	Harvard University, USA	1872
Botanic Garden of University of Rome	Rome	1883
New York Botanical Garden	New York	1891
Jardin Botánico Municipal of Buenos Aires	Argentina	1892
Botanical Garden, National Museum of Natural History	Beijing	1930
Botanical Garden, Forest Research Institute, Dehradun	Dehradun, India	1934
The Jardin Botanique de Montreal	Canada	1936
National Botanical Garden, Lucknow	Lucknow, India	1946

At present there are about 1400 botanical gardens and arboreta in the world receiving over 100 million visitors per year. A large number are located in Europe and more than 30 are found in Italy, including the University botanical gardens. Thus, Italy boasts a historic first with respect to botanical gardens, most of which were founded in the second half of the 18th century and in the 19th century.

Roles of Botanical Gardens:

(a) Botanical gardens are in fact exceptional acclimatization areas, where exotic plants arriving from all regions of the world, live together in the open air, even though out of their natural environment.

(b) The unique and diversified collections of living plants provide basis for research and modern taxonomic studies on morphology, ecology, genetics, systematics and evolution. They supply living plant resources for academic studies on cytology, embryology, anatomy, phytochemistry, etc.

(c) They provide information on food plants, ornamental plants, medicinal plants, etc.

(d) Botanical gardens provide germplasm for hybridization to produce better varieties of flowers, fruits and vegetable plants commercially from these plants.

(e) The various facilities of glass-houses, green houses, etc. at botanical gardens provide protection to many endangered plants and means of propagation of rare plants.

(f) Different botanical gardens of the world have served as acclimatization centres and provided adequate facilities for protection of economic plants. Many are responsible for commercial utilization and expansion of many valuable plants such as tea, rubber, coffee, cotton, teak, cinchona, hemp, vanilla, etc., which are natives of one place and have been introduced in other countries.

(g) Botanical gardens also provide seeds and sapling of important plants on exchange basis to other gardens, to encourage the introduction of some exotic, useful and economic plants.

(h) Botanical gardens practice and provide training for conservation of nature and are useful for training people in growing horticultural plants, landscape and gardening.

(i) They are centres for recreation and aesthetic beauty.

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