

Chapter 2

THEORETICAL DISCOURSE

Evolution of botanic gardens within the landscape architectural discourse.



Landscape

1st Century -----> 21st Century



Botanical gardens

1st Century -----> 21st Century

Fig 2.1. Timeline diagram (Lynch 2012)

PHYSIC GARDENS: Medicinal, simple, scientific, educational focus

AGE OF EMPIRE: WEALTH

1st century

De Materia Medico, written by CE Roman physician Dioscorides.



10th century

Exotic collections were planted in Andalusian experimental gardens.

15th & 16th century

Monasteries had gardens with collections of medicinal herbs. Soon expanded collection to include other plants.

In 1534 the gardens of Pisa and Padua were specifically dedicated to the study of plants.

Late 16th & 17th century

Other gardens with the same intent as Pisa and Padua developed:

Intense rivalry sprung up between gardens to obtain the largest collections from around the world.

18th century

Development of economic botany internationally. Civilized world were now in commercial communication. Ships intercharged both goods and ideas. Apart from ideas in design, plants were now freely circulated. Wealth found in plants.

Royal Botanic Gardens, Kew, established.. Under Sir Joseph Banks it became a centre of botanical exploration and horticultural experiment unparalleled before or since.

5th - 15th century: Middle Ages, Europe

Christianity was the driving force.

Garden art was confined either to the cloister garden, small enclosed domestic or castle garden. Man did not wish to project his personality over the landscape, but rather to grow from it and thus be part of it.

Emotional rather than intellectual landscape.

15th & 16th century: Renaissance, Italy

The garden was made for man and dignified him.

The proportions gave him peace: the form

17th century: Renaissance, France

Garden no longer a mere extension of the house illusion of space, give user sense of being in a heroic landscape of the gods.

17th century: Baroque, Italy

Man's relation to the universe as a whole. Theatrical garden designed for unfolding drama. Freedom of choice of site. Design in perspective to give illusion of space.

Western classicism

Landscape planning as an extension of parks and town-planning. Man was keenly aware of both the natural and the man-made environment, deriving pleasure from juxtaposing them, setting up tensions between them or resolving them in harmony.

Chinese School

Sought to bring down scale to that of the tree. The idea that a landscape should respond to moods of awe as well as enchantment and pleasure.

GROW FROM NATURE & BE APART OF IT

GARDEN DIGNIFIED MAN

ALL NATURE SHOULD CONFORM TO DIGNIFY MAN

MAN'S RELATION TO UNIVERSE, NOT JUST IMMEDIATE ENVIRONMENT

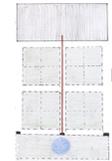
MAN-MADE VS. NATURE

Early Renaissance Style 1450



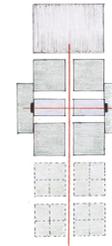
GARDEN AS CARPET

High Renaissance Style 1540

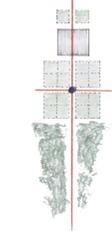


GARDEN AS SUPERNATURAL

Mannerist Style 1660

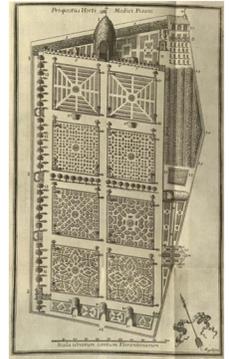
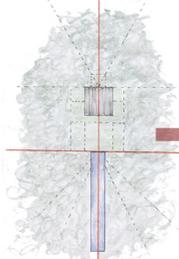


Early Baroque Style 1600



GARDEN AS THEATRE

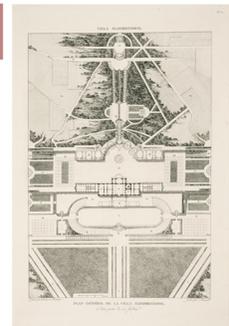
High Baroque Style 1650



1534 - Pisa, Italy



1626 - Jardin des Plantes, Paris



1754 - Belvedere Palace Garden, Alpine Garden and Botanical Garden, Viena

2.1 Introduction

Botanic gardens have always been about plants. But the history of the botanic garden offers a unique window into how humans have used and valued plants in the past several centuries. Looking at how plants were viewed in a moment in history, together with how landscapes were perceived and approached over the centuries, can help us understand the role of botanic gardens and where they are placed within the profession of landscape architecture.

2.2 The evolution landscapes

2.2.1 1st – 15th Century

During the first 15 centuries AD Christianity was the driving force in landscape design. Garden art was confined either to the cloister garden, small enclosed domestic garden or castle garden. Man did not wish to project his personality onto the landscape, but rather to grow from it and thus be part of it. The landscape arts during these ages were intuitive rather than conscious design, with underlying messages of symbolism which had reference to religion. It was the age of emotional rather than intellectual landscape reasoning, which influenced the future in two ways: as an inspiration for the romanticism of the 18th and 19th century and as an aesthetic standard or guide for asymmetrical composition (Jellicoe & Jellicoe 2006).



Fig 2.1: Dioscorides (Materia Medica)

During these ages the first herbal manuscripts were written, most notably De Materia Medica by CE Roman physician Dioscorides (Rogers 2007:12). Several exotic collections were planted in Andalusian experimental gardens, which were typical of that time. Other cultivated gardens, mainly of vegetables and medicinal plants, only existed within the precincts of buildings. During this time physicians and botanists wrote on the medicinal and nutritional value of plants in books such as The Ultimate in Materia Medico and Simple Medicaments and Nutritional Items (Rogers 2007:12). The gardens they created came the closest to botanic gardens

during this time. Their design and layout had an approach very similar to most other landscapes during that century, i.e. as enclosed gardens. Garden art was very much their own and they grew from it.

2.2.2 15th & 16th Century

The garden was made for man and dignified him. The proportions gave him peace: the form was crucial. These gardens included box parterres, clipped hedges, the dark cypress and groves of ilex, sculpture, stairways, pergolas and arbours, and water in repose and in fountains.

The landscape design style was of the early Renaissance, which developed more or less during the 1450s from the medieval enclosed castle garden. Gardens were ornamental and mostly used for social gatherings, for discussions and entertaining friends. Forms were mostly square and rectangular and were designed to be viewed from the upper windows of a house to show unity, order and regularity, rather than for entering and experiencing first-hand. These shapes viewed from above can be likened to carpets; Jellicoe and Jellicoe (2006) refer to them as 'garden carpets'.

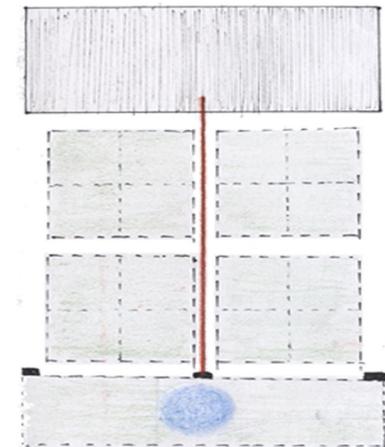
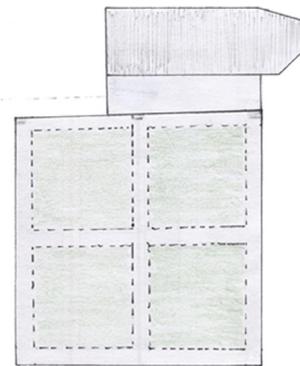


Fig 2.3: Early Renaissance 1450. (Author 2015) Fig 2.4: Early Renaissance 1540 (Author 2015)

Vignola (1507-1573) lifted landscape design into the sublime at Villa Lante, subordinating it to cosmology. It was quite common in this era for design to refer to astrological, cosmological and religious notions. This can also be seen in the Renaissance botanic gardens of Pisa and Padua that were established in 1534. They were based on geometric arrangements of astrologically resonant forms such as circles, squares and triangles. The intent was to channel the positive energy radiating from the planets and the stars into objects on earth, thereby increasing the healing power of the garden of simples. These cosmological powers influenced the plans of

GOLDEN AGE OF BOTANY: INDUSTRIAL REVOLUTION: EXOTIC PLANTS CULTIVATION

CONSERVATION

Romanticism

England was the revolt of classicism in landscape. Hard edged to soft. Nature was an equal and friendly partner to man which could provide inexhaustible interest, refreshment and moral upliftment.

NATURE EQUAL TO MAN

19th century

European botanic gardens sent botanists on plant-hunting expeditions. Colonial botanic gardens established as outposts to hold and propagate plants.

Numerous famous explorers made exiting discoveries, leading to botanical gardens becoming horticultural showcases, stimulating growth of the nursery industry and the introduction of exotic plants into private gardens.

Simultaneous advances in the manufacture of iron and glass, enabling construction of large scale conservatories

1836

'The Great Stove' constructed.

1844

Palm House at Kew constructed

Mass production of iron, invention of steel and steam-engine, transforming communications and reduced the globe to a measurable size. Contrast between industrial landscape and romantic landscapes.

French capital remained the world centre of classicism. Cities lay out in classical planning, becoming semi-military for the control of mob violence, but a romantic park system as an antidote.

Collective public park popular, derived from the eighteenth century aristocratic park. The phenomenon of the age was an excessive urge for escape into romance, excited by literature and travel.

GARDEN USED TO ESCAPE INTO ROMANCE

20th century

Botanical gardens as a place to study the medicinal properties of plants persist in a world where 80% of the population still uses herbal remedies.

Ethnobotany became an important branch of botanical gardens, wedding sociology with plant science.

First half:

The Human species had roughly doubled in number. Wild life was threatened with extinction. Industrial Revolution left scars on the landscape, cities expanded beyond the size that could be supported.

Europe - Ecology and constructivism were in opposition. This paralleled the Garden Cities movement, people resolving the relation of architecture to landscape.

In **America** landscape design remained detached from Europe. Landscape was transforming into a new way of thought.

Second half:

No longer did man fear his environment. Capacity of the earth to sustain life was not unlimited; natural resources must be conserved and not wasted; science of ecology developed.

MAN NO LONGER FEARS ENVIRONMENT: SUSTAIN BALANCE

21st century

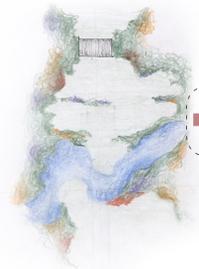
Global conservation of endangered plant and ecological niches in which they grow. Educational programmes by botanic gardens to stress the role of plants as primary biological unit upon which all life depends.

Propagating endangered plants and re-establishing them in their natural habitat.

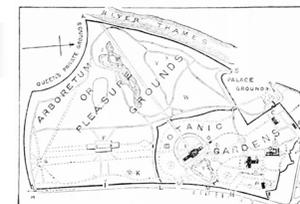
Sustainable landscapes that are responsive to the environment, re-generative, and contribute to the development of healthy communities. Sustainable landscapes that sequester carbon, clean the air and water, increase energy efficiency, restore habitats, and create value through significant economic, social and, environmental benefits.

CONSERVATION OF NATURE

Picturesque and Gardenesque 1790



GARDEN AS PAINTING



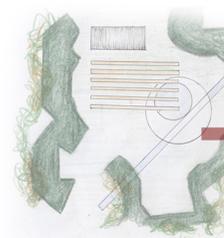
1757 - Kew Gardens, London

Arts and Crafts ; Abstract Style 1900



1820 - Jardin des Plantes, Paris

Postmodern Style 1972

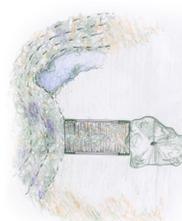


GARDEN AS FORM OF ART



2005 - The Australian Garden, Victoria

Ecological design: 1994



GARDEN AS INSTRUMENT



1999 - Jardí Botanic de Barcelona

botanic gardens before the Enlightenment. The religious reference that occurred in botanic gardens was the arrangement of plants collected from the four corners of the earth, intended to indicate the re-gathering of the paradisiacal bounty of Eden that was scattered at the time of the Fall (Rogers 2007:13). Here we can make the analogy that landscapes were seen as supernatural, as opposed to the previous era in which landscapes were seen as carpets.

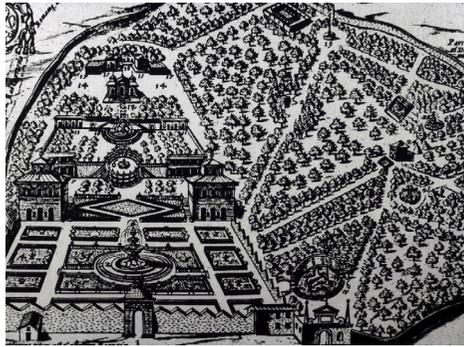


Fig 2.5: Villa Lante 1540 (Cornell University)



Fig 2.6: Padua Botanic Garden 1534 (King Abdullah International Gardens)

The rise of physic gardens demonstrates the importance of plants as medicine. Soon collections expanded to include other plants: “in botanic gardens not only medicinal herbs were cultivated but also other plants, especially rare ones for the purpose of observing and admiring nature,” as noted by a writer in 1561 (Johnson 2007:67).

André Le Nôtre (1613-1700) revolutionised French garden design: the garden was no longer a mere extension of the house. The use of geometry became solid as opposed to 2D geometry, the organisation of which was based on axially. The shape of the landscape design was carved out of the woodlands. Baroque designs offered a quality of unity with the sky and the surroundings. The scale expanded as it receded from the house, with sculptures and fountains implemented throughout the garden to create the illusion of space, and to give the user a sense of being in a heroic landscape of the gods. These ideas were based on the principles of the High Renaissance in France, with the general approach to landscape design being that all nature needs to conform to dignify man (Jellicoe & Jellicoe 2006).

2.2.3 17th Century France

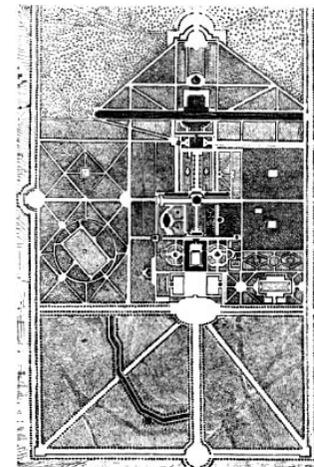


Fig 2.7: Andre Le Notre (Vaux-le-Vicomte 2015)

In Italy, during this same period, the garden started to depict man’s relation to the universe as a whole, instead of merely the immediate environment, as seen in the design of Vaux-le-Vicomte, shown in Fig. 1.9. The gardens were designed theatrically and set the stage for the unfolding of drama. There was a freedom of choice when it came to sites, which inspired very original designs. These unique sites determined the axis of the composition of the garden, which led the eye into infinity. Strong compositions were paramount and the details often coarse. Land was used in a lyrical and experimental way that was based on a sense of movement and expansion beyond the finite boundaries that governed space design during the Renaissance. Designs were now done in perspective to give an illusion of space. A

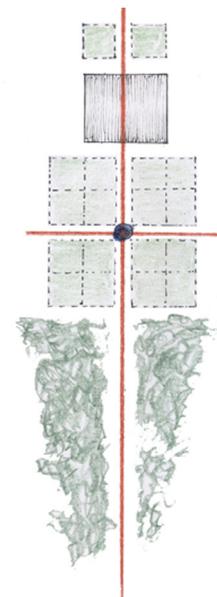


Fig 2.8: Early Baroque, 1600 (Author 2015)

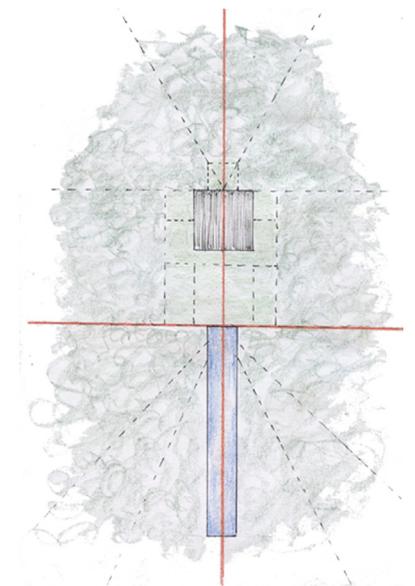


Fig 2.9: High Baroque, 1650 (Author 2015)

few different styles emerged from 17th century Italy, including Mannerism and Baroque. These could be described with the analogy that gardens can be seen as theatres, because of the fact that they were used as gathering places for high society

to admire and participate in the theatricality of the garden. Like a play, the garden was incomplete without an audience.

This type of theatrical design can also be seen at the Villa Garzoni, depicted in Fig. 1.10, and the Belvedere Palace Garden, shown in Fig. 1.11, which were also the first botanical gardens in Vienna. The strong relationship between botanical gardens and landscape architecture, and how these developed over time and influenced each other, together with the existing world views on nature, are clearly demonstrated.



Fig 2.10: Villa Garzoni, Callodi, 1652. (Tulloch 2011)

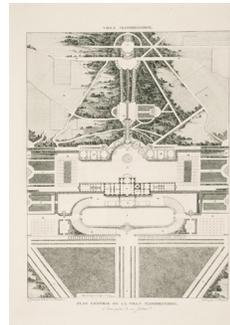


Fig 2.11: Belvedere Palace Garden Alpine garden and Botanical garden, Vienna (Cornell University)

Other gardens with the same intent as those of Pisa and Padua developed. Intense rivalry sprung up between garden directors to obtain the largest collections from around the world, yet there was little impetus to create botanic gardens as ordered collections of plants (Johnson 2007:67). At the end of this century, the first mention was made of activities other than medicine as its primary focus: namely of gardens as places of national prestige and personal pleasure.

2.2.4 18th Century The Age of Empire

Three main ideas motivated landscape design:

- 1 Western classicism: Man-made vs. Nature. Landscape planning as an extension of parks and town-planning. Man was keenly aware of both the natural and the man-made environment, deriving pleasure from juxtaposing them, setting up tensions between them, or resolving them in harmony (Jellicoe & Jellicoe 2006).
- 2 The Chinese School: it sought to bring down the scale of a design to that of the tree, and was based on the idea that a landscape should respond to moods of awe as well as enchantment and pleasure (Jellicoe & Jellicoe 2006).
- 3 Romanticism: Nature as equal to man. In England there was the revolt against classicism in landscape in favour of the expression of a totally new and liberal age. The balance of man's subconscious relation to his environment permanently

changed from hard-edged to soft. Nature was an equal and friendly partner to man, which could provide inexhaustible interest, refreshment and moral upliftment, as seen in the painting of a typical romantic landscape at Castle Howard (Fig. 1.13). At the end of the century, the English landscape consisted of a sequence of immense green parks set in an agricultural pattern (Jellicoe & Jellicoe 2006).



Fig 2.12: Gardenesque & Picturesque 1790 (Author 2015)



Fig 2.13: Picturesque landscape: Castle Howard. Hendrik de Cort. Oil on canvas (n.d.)

During this era explorers fostered the development of economic botany internationally. The civilized world was now in commercial communication. Discoveries of sea routes around the Cape of Good Hope in South Africa had opened up trade between Europe and the East, and colonies were lodged everywhere. Ships interchanged both goods and ideas. Apart from ideas in design, plants were now freely circulated, in due time to multiply, mix with indigenous species, and enrich local scenery

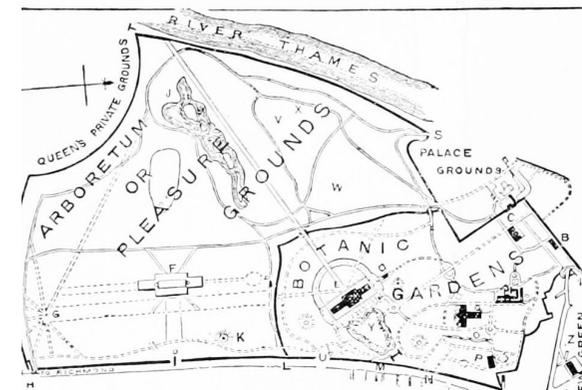


Fig 2.14: Kew Botanical Gardens, London, 1757. (Wikimedia 2015)

beyond the power of their natural distribution to achieve. Wealth was found in the cultivation of sugarcane, tobacco and plant-related dyes. The Dutch discovered coffee, and plantations were established and spread throughout Europe. Within this trading industry, the exchange of economic plants from colony to colony became common (Rogers 2007:14).

In 1772 King George III combined the gardens at Kew with the Palace of Richmond to form the Royal Botanic Gardens, Kew. Under Sir Joseph Banks it became a centre of botanical exploration and horticultural experiment unparalleled before or since (Johnson 2007:70). Thereafter botanic gardens in the Americas, Asia and Africa came to be established. The design of Kew was very much exemplary within that paradigm. The Romantic idea of designing in the picturesque style had a great influence on the design of the garden, and gave rise to the analogy to view gardens as paintings.

2.2.5 19th Century Industrial Revolution - Golden Age of Botany

The Industrial Revolution brought with it the mass production of iron, and the invention of steel and steam-engines, and transformed communications which conveniently reduced the globe to a measurable size. Among other goods, plants from the remotest foreign parts now flowed into England. A contrast existed between the industrial landscape and romantic landscapes, which gave way to a change in the economy from agriculture to manufacture (Jellicoe & Jellicoe 2006).

The design style that came with the machine was created through movements such as Art and Crafts and abstract style, which drew inspiration from the shapes of the abstract arts. The garden became an exercise ground for machinery such as motor mowers, concrete mixers, electric pumps, cultivators, sprays and other gadgets. Although the garden was beginning to be seen as a form of art, the phenomenon of the age was still defined by an excessive urge to escape into romance, excited by literature and travel. The interweaving of the classical and romantic continued. The

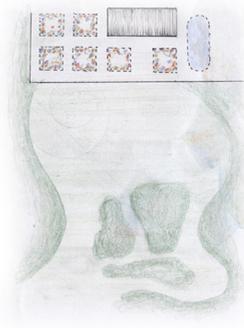


Fig 2.15: Arts and Crafts; Abstract style. 1900 (Author 2015)

middle class created suburbs of villas, and sought with their modest gardens not only to emulate the traditional park, but to encompass the infinite variety of plants now available (Jellicoe & Jellicoe 2006).

European botanic gardens, most notably the Royal Botanic Gardens at Kew, sent botanists on plant-hunting expeditions. Colonial botanic gardens were established as outposts to hold and propagate plants destined to be sent back to parent institutions. Numerous famous explorers such as Douglas Fir, Joseph Hooker, William Forsyth and Charles Darwin made exciting discoveries, leading to botanical gardens becoming horticultural showcases, stimulating the growth of the nursery industry and the introduction of exotic plants into private gardens such as in the suburbs of villas mentioned above (Rogers 2007:15).

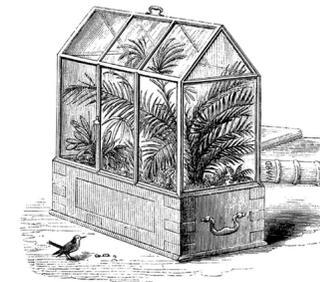


Fig 2.16: The Wardian Case, to transport plants by sea (Wallings n.d.)

Advances in the manufacture of iron and glass enabled the construction of large-scale conservatories with curving sides and glass roofs, which allowed the housing of tropical plants in northern latitudes. In 1836 the Palm House at Kew was constructed. Such architecturally striking structures soon became the centre-pieces of many botanical gardens and parks (especially in America) (Johnson 2007:76). Not long after, in 1844, 'The Great Stove' was constructed, a 20 metre high conservatory at Chatsworth which became the model for Paxton's Crystal Palace in London (Rogers 2007:16). Botanic gardens coincided with the growth of the public parks movement and became places of recreation as well as learning institutions, and their collections began to be arranged and displayed within the picturesque park-like nature, although all of the new botanic gardens that started to become established throughout Europe were mainly pleasure gardens, with few of them having scientific programs (Johnson 2007:76). The redesign of the grounds of botanic gardens stemmed from the urge during this century to escape into romance, although the industrial influence can be seen in their manicured lawns and glass houses. The irony is that the very thing coming from the appalling conditions of the Industrial Revolution became an escape into paradise. Botanic gardens today still aim to be a source of inspiration, wonder and relaxation for visitors.

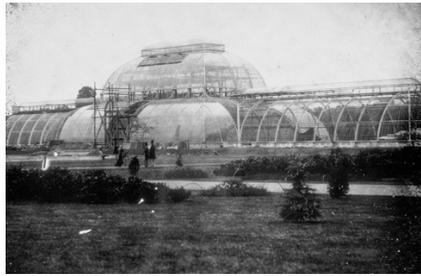


Fig 2.17: Palm House. Kew. 1836 (Gardner 2014)

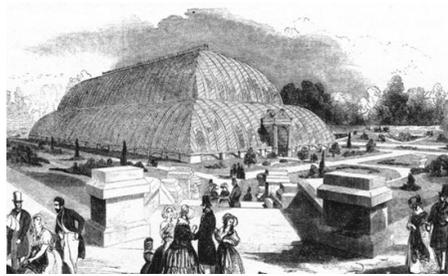


Fig 2.18: The Great Stove. 1844. (The Victorian Web 2006)

2.2.6 20th Century Conservation

The Human species roughly doubled in number during the nineteenth century. Wildlife became threatened with extinction. The Industrial Revolution left scars on the landscape, cities expanded beyond a size that could be regionally supported, and the air about them was permanently polluted. In Europe, Patrick Geddes came up with the idea of an ecology that comprehended the arts of civilised life and the sciences. This paralleled the Garden Cities movement, which included the resolution of the relation of architecture to landscape. The profession of landscape architecture was established. Throughout the period, the twin forces of ecology and constructivism were in opposition. Landscape was being transformed by a new way of thinking through a collective movement of landscape architects. During this era the ruling authority changed from monarchy to democracy; the great private garden had passed and became replaced by countless individual gardens and collective parks in a postmodern style.

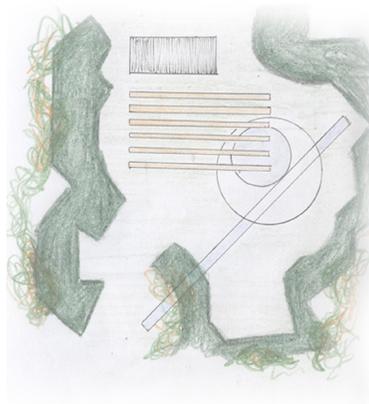


Fig 2.19: Postmodern style. 1972 (Author 2015)

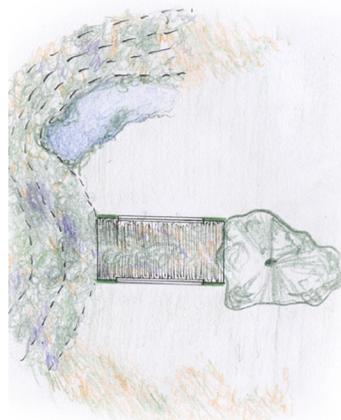


Fig 2.20: Ecological design. 1994 (Author 2015)

By the second half of the century, man no longer feared his environment. The realisation surfaced that the capacity of the earth to sustain life was not unlimited and that natural resources must be conserved and not wasted. The population of a place must be related to the amount of food available in the area. This led to further development of the science of ecology, wherein all biological things were approached in relation to others to sustain a balance.

This knowledge on the subject of ecology gave way to an ecological design approach, which started around roughly 1994. This design approach broke away from the designs of the past centuries, when humans had forced their natural environments to conform to their wants and desires. Now, man seeks to conform to the environment. This includes the incorporation of design into the natural flow of the land as an aesthetic quality, and the use of less energy to control microclimatic conditions and rather allowing design to do so. Sun power is incorporated in design, rather than the excessive use of electricity. The materiality of designs are starting to be considered carefully in order to choose sustainable materials that minimally affect the environment. An active attempt is made to conform the landscaped area to the natural landscape. This is done in several ways, of which the incorporation of indigenous plants into landscape design has become a major part. This approach to landscape design can be defined through the analogy of landscape as tool, and places emphasis on the fact that the landscape is used by man in order to “fix” the broken ecology, the lack of biodiversity, and the polluted environment.

Botanical gardens in the 20th century were at the core of the ecological movement. Botanists estimate that 100 000 plant species around the world, a third of the total known global flora, are threatened with extinction, making plants the most endangered species on the planet. Habitat loss, invasive species, wild collections and climate change are all contributing to this global decline in plant diversity and plant populations (Johnson 2007:77). Conservation work is now the main driver of botanic gardens all around the world, as stated in the Botanic Gardens Conservation International (BGCI) public awareness campaign. The conservation agendas of botanic gardens differ according to the local environment, funding, government support and cultural considerations, amongst other factors. Most botanic gardens do participate in conservation in some way under each of the following topics: environmental education; science and research; and ex situ conservation projects. An example of such a botanical garden is the Barcelona Botanical Garden, as seen in Fig. 1.21, focusing on the conservation and environmental education of the five Mediterranean regions and the plants and communities from those areas of the world (Aixart 2015).

The role of botanic gardens as a place to study the medicinal properties of plants persists in a world where 80% of the population still uses herbal remedies. Ethnobotany has become an important branch of botanical gardens, wedding sociology with plant



Fig 2.21: Barcelona Botanical garden (OAB Architects 1999)

science, and linking to the educational role of botanic gardens that still persists from the early physic gardens, which were in essence ‘teaching gardens’. Today the most important message that they focus on passing along to visitors is the importance of plants and the need for their conservation. Other objectives of botanic gardens include the scientific research of plants, such as studying growth patterns and genetic variations of plant species, researching adaptability of introduced plant species, and assessing the economic value of species. Researchers attempt to continue to contribute to our understanding of the world’s flora (Johnson 2007:78).

2.2.7 21st Century

In the current era, the movements for the conservation of nature and sustainable landscapes are still the strongest leading influences. Designs are responsive to the environment and re-generative, and can actively contribute to the development of healthy communities. Sustainable landscapes sequester carbon, clean the air and water, increase energy efficiency, restore habitats, and create value through significant economic, social and environmental benefits. The type of projects landscape architects deal with today include those ranging from large-scale sustainable master plans and housing communities to small-scale green streets, wastelands, parking lots, and private yards. Landscape designs aim to be innovative models that outline a path to a sustainable future practice. These designs respond to climate change, urbanisation, population growth and densification, to make future cities liveable, workable and beautiful.

So where does this leave botanical gardens today? As our knowledge of ecology evolves, botanic gardens will continue to be important sources of information about the world’s plants, which forms the backbone of our ecosystems. No matter how

they have changed over the years, they will always be humanity’s main scientific, aesthetic and social link to plants. They serve to educate, to explore, to fascinate and to discover. They will continue to reflect our evolving relationship with plants and the rest of the natural world.

Case Study

The Eden Project



Fig 2.22: Eden project plan (Corbnwall Calling 2001)

The Eden Project is a Millennium project built in a former Cornish clay pit in the south-west of the United Kingdom. Eden’s mission is: “To promote the understanding and responsible management of the vital relationship between plants, people and resources leading to a sustainable future for all” (Alistair 2008). Eden’s aim is to present, to the widest possible audience, the need for environmental care through celebrating what nature gives to us. Eden’s education programme comprises major themes such as energy and climate change, food, nutrition, health and well-being, biodiversity and sustainable use of plants.



Fig 2.23: Eden project perspective (The Eden Project 2001)



Fig 2.24: Eden project biomes (The Eden Project 2001)

The Eden Project communicates its story in the “Living Theatre of Plants and People”, based in a large crater in which nestle two vast greenhouses (Biomes) (Alistair 2008). The project tells the story of people’s dependence on the natural world, and of regeneration and what people can achieve when they work together and with nature.

2.3 Conclusion

After the in-depth study of how landscapes, together with botanical gardens, have developed over the years, a few conclusions can be made:

- Man’s relationship with and attitude towards nature has been directly influenced by the world views and the economic, social and environmental conditions that prevailed during certain times.
- This in turn has greatly influenced the way landscape design has been approached and shaped throughout the centuries.
- Stemming from the first two conclusions, man’s relationship with, attitude towards and experience of nature can be described with certain analogies demonstrating clearly those parts of nature that were focused on most during each era (this idea will be discussed further in Chapter 4.)
- Botanic garden designs are directly relatable to the landscape design that was popular during each era.

- The main use and focus of botanic gardens are directly relatable to the world views as well as economic, social and environmental conditions prevalent in each era.

It can now safely be assumed that there is a definite role for the landscape architect in the design of botanical gardens. Since there is such a wide variety of uses and approaches to the design of a botanical garden, a contemporary approach will rely greatly on the specific conditions of where it is located and the economic, social and environmental conditions of the community. In order to ensure good design, it is necessary to research theories on landscape architectural designs that are most appropriate for the present era and how (or whether) they can be applied to the design of botanical gardens.