

# Applying the Ideas, Principles, and Theories of Past Landscape Architects to Modern Day Environmental Concerns

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**Abstract:** Throughout history, landscape architecture developed from garden art, and many different factors contributed to the development of this tendency. Even though landscape architecture is typically involved in the planning and design of land and water, it also contributes to the development of a safe, resilient, and sustainable view, which in turn encourages healthy living and responsible stewardship of the environment. At this time, the excessive use of land for settlement in the wake of urbanisation has resulted in the fragmentation of habitats, the loss of agricultural land, a lack of ancient ties, and the destruction of cultural landscapes. It would be to everyone's benefit to go back in time and explore the innovative approaches that landscape architects of the past were able to take in order to find answers to the pressing problems that are prevalent at the time. As a consequence of this, the research looks into well-known landscape architects from across history and the ways in which their designs have had an enduring effect. The findings of this study, which combine theoretical and analytical approaches, suggest that the restoration of landscapes may be viewed both as a means and a goal in addressing contemporary environmental concerns.

**Keywords:** Landscape Architecture, Landscape Architects, Outer Spaces, Principles, Transformation

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## 1. Introduction

The International Federation of Landscape Architects (IFLA) defines landscape architecture as "a profession and academic discipline that applies principles of art, physical, and social sciences to environmental planning, design, and conservation processes. The principles ensure the long-term improvement, sustainability, and harmony of natural and cultural systems or landscape components, as well as the design of outdoor spaces with aesthetic, functional, and sustainable qualities" [17]. Before 1800, the primary focus of landscape gardening, which was later termed landscape architecture, was on the strategic planning and design of gardens for manor estates, palaces and royal holdings, religious complexes, and government institutions [32].

Today, the activities of landscape architecture encompass everything from the creation of public parks and parkways to

the site planning and design of parks for campuses and corporate offices; from the design of residential estates to the design of civil infrastructure; and everything in between, such as the management of large wilderness areas and the restoration of degraded landscapes such as mines and landfills [37].

The primary focus of landscape architecture is the design and management of outdoor and public spaces, including their respective land features. Consequently, landscape architecture may be used for various outdoor situations, including vast or tiny, urban or rural, and comprised of hard or soft components. Hard materials are used to construct outdoor furniture and other landscape elements, while smooth materials are used for constructing plant materials [10]. According to [49, 68], a region is considered a landscape after it has been characterized or appraised in terms of the earth and its physical qualities (physiographic and environmental characteristics).

Furthermore, [4] asserts that, the landscape is a part of nature that we inhabit and can feel with our senses. This direct engagement significantly impacts the aspects of our lives that are the most satisfying and enjoyable. As the attention of the world increases, one might also say that landscape is concerned with conserving the environment [50]. This setting is essential for establishing and strengthening connections between people, the natural world, and human businesses [53]. Landscape architects are environmental designers responsible for constructing our built environment, which consists of the natural and social worlds, city and desert locales, land, water, and air; and the environment can either be natural or artificial. The plans created by the landscape architects took into account the people, communities, structures, plants, and animals that would be using the space. Landscape architects are responsible for more than the purely aesthetic aspects of development; they are also responsible for the quality of the created environment, the ambiance of the development, and the space itself. It is widely recognized as a natural and social system whose primary purpose is to protect individuals' physical and mental well-being, the environment, and society as a whole.

Rapid urbanization as a result of industrialization has adverse effects on the environment. The effect includes climate change as a result of the urban heat island [34]; biodiversity loss as a result of vegetation removal and landscape fragmentation; consequently, leading to an increase in the number of endangered species and the spread of invasive species [15]; and illness in the soil, water, and air [14]. This approach has implications for the overall environment and the people who live in it, particularly in metropolitan regions [2]. In addition, the irresponsible exploitation of natural resources will eventually lead to a future in which no resources are available for human use.

In addition to converting agricultural land into settlements, one of the most apparent signs of a significant change in land cover characteristics is the exploitation of land for constructing buildings and other activities related to urbanization. Land is a multifaceted resource, consisting in particular of the soil, water, and the variety of living things that live on it [15]. In addition, it is a limited resource that gives humanity access to essential goods and services provided by ecosystems [63]. As time goes on, a growing number of people see alterations in land use and landscape as a cause for concern. This is because of the decline in the health and well-being of city dwellers and the loss of biodiversity. The requirement for landscape structural modifications, such as the extension of habitat, will contribute to the preservation of resource species and the citizens' health and well-being.

Since the beginning of time, people have been modifying the landscape in various ways, and it is crucial to keep in mind that these changes have also occurred in the past. In order to bridge the gap between the past and the present, it is necessary to take a more historical perspective on the transformation of the landscape and show how significant obstacles have been conquered.

[55], emphasized the need to look at the evolution of

human-natural environment interaction as a capability to elicit historical directions that may help resolve present-day environmental challenges. The believed looking at the evolution of human-natural environment interaction could help in the framework of sustainability and sustainable development, several fields of study have demonstrated an interest in acquiring a more profound knowledge of the histories of landscapes as social-ecological structures [5].

It is important to look at how past landscape architects used creativity to solve earlier design problems and how the physical appearance of the environment, both now and in the past, has changed in order to broaden our understanding of how to conserve higher and restore the natural environment. As a result, this study looks at prominent landscape architects who have influenced the field and how their influence has affected users and the environment. This will be accomplished by looking at their methodology, concepts, ideas, and sketch approach of these architects, who made significant contributions to the career by their enduring designs and impact.

## 2. Methodology

This study used both qualitative and historical methods. The strategy involved gathering data from exploratory studies and academic scholarly research. The objective was to better comprehend the concepts, guiding principles, and historical changes in the environment by selecting some notable landscape architects. Additionally, the historical approach is a useful method of collecting historical information regarding the philosophies of landscape architects and the best ways to handle issues. This study collected information about how the terrain has changed over time and about present environmental problems. Both theoretical and analytical techniques were used to collect the data for the investigation. The study was conducted utilizing already-existing documentation on certain architects.

## 3. Literature Review

The literature review deals with the works of top 10 prominent landscape architects in the history of the profession. The works of these landscape architects are intricately related to certain natural settings and cultural characteristics. The architects were picked to represent a range of architectural styles, from postmodern to naturalistic. Many of these architects' designs incorporate elements from a variety of artistic movements. Gertrude Jekyll, Lancelot Brown, Frederick Law Olmsted, Andre le Notre, Peter Joseph Lenne, Corajoud Michel, Roberto Burle Marx, Thomas Church, Pechere Rene, and Geoffery Jelicoe were among the architects selected.

### 3.1. Frederick Law Olmsted

On April 26, 1822, Olmsted was born into a renowned Hartford family. He did not acquire a formal education due to his poor vision until much later in life, when he attended

Yale lectures on geology and scientific agriculture and performed extensive research on landscaping and wildlife.

He settled in State Island to become a farmer after obtaining expertise, and he did so until 1854, when he worked as an administrator in several locations [12]. In 1859, Olmsted married Mary Cleveland Perkins Olmsted, the brother's widow, and the two eventually had two children.

He opened a design studio in Brookline, Massachusetts, at the age of 61 in 1883. The company was the first full-scale professional landscape architecture office in the nation, earning it the title of "Father of Modern Landscape Architecture" by many [11]. The American landscape architect created a number of amazing public and private parks, but Central Park (figure 1), which was commissioned in 1857, is most known for his brilliant design.

Following the building, there was a large influx of projects, including the Stanford University grasp format and the Biltmore Estate in North Carolina [64]. Olmsted's thoughts were shaped by his early experiences and influences. The most significant person in his life was his father, who loved nature and spent most of his free time exploring it. Others came from Humphry Repton's Sketches [33], Uvedale Price's Forest Scenery publications, and the teachings of Price, Gilpin, and Repton, which formed the cornerstone of his aesthetic theory.

His subconscious technique was informed by articles by von Zimmermann and Bushnel in their book "Solitude Considered," as well as lessons on the significance of "unconscious influence" [44]. His design methods might be classified as either Beautiful or Picturesque. These styles are used by Olmsted's aesthetical approach to foster a sense of tranquilly. Olmsted carefully avoided items that could divert attention, as seen in Figure 2 [12], and he focused on certain components of nature to evoke a psychological reaction that went beyond admiration for the scene's beauty [19]. A crucial element of his design was the "perspective effect," which was produced by his practical space organisation [64]. By contrasting the dark foreground forms with lighter, less defined ones farther away, this helps create a sense of space that is more expansive [12].



Source: Google Survey, 2022.

**Figure 1.** Central Park New York.



Source: Google Survey, 2022.

**Figure 2.** City Park System, Buffalo, New York. University, California.

According to Olmsted, the purpose of a landscape was to provide people more opportunities to enjoy the view than they would otherwise have in a particular area [19].

His parks were built to smooth the country's transition from fields to cities, as well as to provide spaces where everyone is welcome regardless of socioeconomic status and to develop a feeling of community. His landscape was originally planned to bring respite to a state recovering from the Civil War.

During the Industrial Revolution, when there was a greater emphasis on economic progress at the expense of the environment, Olmsted had a significant impact on changing the American landscape [12]. Olmsted and his contemporaries put into practise the contemporary principles of urban planning and design.

### 3.2. Peter-Joseph Lenné

Lenné, a descendant of gardeners, was born on September 17, 1789, in Bonn. He became a botanical gardener after completing elementary school, and then a landscape architect [25]. Undoubtedly, one of the most powerful people on the earth was Lenné. He was a forward-thinking city planner and a German landscape architect of the nineteenth century. He advocated for reforming the old horticultural education system and the growth of garden design as an artistic and intellectual field [29, 30 and 31].

He created a number of gardens, parks, and squares in Potsdam-Berlin, Brandenburg, Mecklenburg-Vorpommern, Silesia, Pomerania, and Austria in either an eclectic or straightforward symmetrical style. He created a plan for the Klostersberge in Magdeburg, Germany's first public park, in 1824. As seen in figure 3, he skillfully used the terrain of the park to orient views toward the city's panorama and its distinguishing features, such as the cathedral or the harbour.

According to Lenné, city parks serve as a venue for social issues, education, and identity development in addition to being a location for strolls and rest. He created and authorised urban plans for parks, city squares, therapeutic parks, hospital gardens, zoological gardens, and cemeteries starting in the 1840s. His creations include the Roseninsel



and Lenné Park in Feldafing at Lake Starnberg, the Neuhardenberg Palace Ark, the Klosterberge Garden in Magdeburg, the Zwierzyniec Park in Zótfów, the Park Sanssouci in Potsdam, the Garden of the Caputh Palace in Potsdam, and the Landscape Park at Petzow Palace (Figures 3 and 4).

First his father, then Friedrich Ludwig Sckell and William Kent had an impact on him [22]. His work stood out for its inherent simplicity since he saw design as a kind of mission from the beginning. However, influence and the power of example are the most crucial factors on which we rely, he added [24]. By developing positive models and building attractive environments, he was confident that the world might be improved. Lenné called Potsdam his home from 1816 until his passing in 1866.



Source: Google Survey, 2022.

**Figure 3.** Klosterberge Garden in Magdeburg



Source: Google Survey, 2022.

**Figure 4.** Park of Blankense Palace, Trebbin.

### 3.3. Lancelot Brown

Lancelot Brown was born to William Brown on August 30, 1716, in Kirkharle, Northumberland. Brown left school at the age of sixteen and began working as an apprentice with Kirkharle Hall's head gardener, where he remained until he was twenty-three [69]. His career took off, and by 1741 he had joined Lord Cobham's army of gardeners at Stowe in Buckinghamshire. There, he worked alongside William Kent, the man who popularised the English landscape gardening style [62]. Instead of "landscape gardener," Lancelot

preferred the terms "placemaker" and "improver," which are conceptually closer to the job of a contemporary landscape architect.

Brown was given the moniker because of his propensity to refer to a location's "capabilities." On February 6, 1783, Brown passed away in London, leaving a lasting legacy as one of the greatest landscape architects of the eighteenth century. He was in charge of about 117 parks.

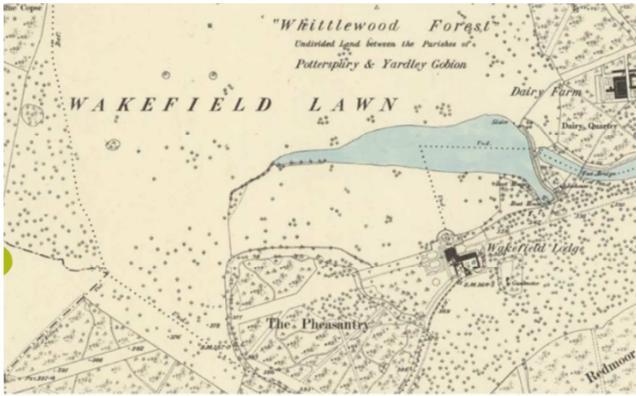
After spending years learning from others, he relocated to the south, first to Lincolnshire and then to Oxfordshire's Kiddington Hall, where he was hired to design the Duke of Grafton's first panorama, which depicted the construction of a new lake in the hall's park grounds at Wakefield Lodge (see figures 5 and 6). [62]. The success of the project led to the creation of a plan to alter the famous Blenheim Palace in Woodstock's park. He also created the magnificent lakes and the bridge designed by John Vanbrugh, nearly eliminating the previous geometric plantations [69]. In order to adopt the team spirit of his ideas, Brown's vocation led him into architecture, and he grew to become a skilled architect in the classical mode of the time. Brown never referred to himself as a landscape gardener.

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Brown never referred to himself as a landscape gardener, but his creations are notable for their organic, unplanned appearance. Instead of using carved stone or architectural forms, Brown restricted himself to using turf, still water mirrors, a few species of bushes used alone, and floor undulations [38]. He used these to produce unassuming, symmetrical patterns that are easy to follow. In Brown's park and lake at Petworth House in West Sussex, which he landscaped between 1751 and 1757, these characteristics had been accurately portrayed. At one point in time, Brown's clothing was praised for its elegance and simplicity. He mastered integrating gardens into their natural environments and creating harmonious landscapes [45]. Brown insisted that the garden serve as a functional backdrop for the impressive residences as well as a source of majesty and aesthetically pleasing nature [76].

André Le Nôtre, the creator of the magnificent formal gardens of Versailles in France, took a far different approach than Gordon Brown since Brown chose to work with nature rather than imposing an architectural design. The Brown landscape was developed in the eighteenth century to draw leisure pursuits like hunting, shooting, and carriage riding. However, because his landscapes appear so natural, it is difficult to see the artist's hand at work in them [58].

Brown altered the landscapes in ways that prevented their owners from using them as game reserves.



Source: Google Survey, 2022.

**Figure 5.** Floor plan of Wakefield Lodge.



Source: Google Survey, 2022.

**Figure 6.** View of Wakefield Lodge Garden.

### 3.4. André Le Nôtre (1613-1700)

Being the son and grandson of French court gardeners who impacted French horticulture, André Le Nôtre was exposed to art and architecture from a young age [27]. He grew up to become the gardener for the brother of the king and other members of the French aristocracy. His early gardens experience served as the foundation for his distinctive and meticulous approach to landscape design, which impressed King Louis XIV enough to hire him to design the Versailles Gardens, which covered more than 15,000 acres (6,000 hectares). He transformed the dirty marsh into a park with beautiful views and strengthened the palace's design with his grandiose style [23]. Le Nôtre's accomplishments are few, although he did design some masterpieces, like the Gardens of Versailles and Vaux-le-Vicomte (Figure 7), which are the last surviving specimens of the French 17th-century style. As seen in figure 8, he was also in charge of the Tuileries' primary path, which served as the city's main axis and ran from the Arc de Triomphe to La Défense [27]. Le Nôtre's reconstruction of the Tuileries Gardens demonstrates his skill for creating expansive vistas.

Le Nôtre was then appointed to a number of government roles. For Nicolas Fouquet, the finance minister, he created the gardens at the château in Vaux-le-Vicomte, adjacent to Melun, adjusting his design to the terrain's relief. He

connected massive blocks of trees to fountains, water features, and statues, stretching from parterres and shrinking on occasion to emphasise the viewpoint and connecting them to fountains, water features, and statuary, achieving the most reflection by paying attention to water tiers [27].



Source: Google Survey, 2022.

**Figure 7.** Versailles Gardens.



Source: Google Survey, 2022.

**Figure 8.** Jardin Des Tuileries.

The gardens of the Trianon, Saint-Cloud, and Chantilly, as well as the parks of Saint-Germain-en-Laye and Fontainebleau, are among Le Nôtre's other creations; brilliance was prized in all of Europe's capital cities. After he visited London in 1662, his students and companions in Germany, Austria, and Spain spread his style of landscape planning and garden design throughout the continent of Europe. Le Nôtre's design for the Versailles grounds became one of the most well-known gardens in the world and a World UNESCO site a century later.

### 3.5. Geoffrey Jellicoe (1900-1996)

Born in 1900, Jellicoe is a landscape architect from Chelsea, London [54]. He enrolled in the Architectural Association in London in 1919, won the British Prix de Rome for Architecture in 1923, and co-wrote *Italian Gardens of the Renaissance* with John C. Shepherd. He spent more than 70 years working in these fields, including garden design, landscape design, architecture, town planning, and education [57]. Jellicoe was chosen as the inaugural president of the International Federation of Landscape Architects (IFLA). He married Susan Pares on July 11, 1936, and



passed away from heart failure on July 17, 1996 in Devon.

Landscape architect Jellicoe works on both personal and official projects. He believed that landscape design was a part of a larger revolutionary process throughout history that included visible arts such as painting, sculpture, and structure. He was influenced by a variety of sources, including the literature of the ancient Greeks, cubism, and Carl Jung's psychology. Early in the 1920s, Jellicoe immersed himself in Italian garden design while travelling throughout Italy with fellow academic J. C. Shepherd while studying architecture and drawing houses and gardens [39].

In addition to being a precursor to postmodernism, Jellicoe's work spans the twentieth-century design eras of Arts and Crafts Classicism, Modernism, and Postmodernism [57].

Jellicoe's introduction to modernism at the Architectural Association in the 1920s and his work on the Kennedy Memorial at Runnymede in the 1960s were key turning points in his design philosophy (figure 10). He used the Pilgrim's Progress by John Bunyan as a metaphor [72], pointing out that going up the steps is like going on a pilgrimage, whilst going down the steps reveals a more in-depth approach to design for the designer. In order to educate him the value of the subconscious in landscape design, Jellicoe used his Runnymede pattern [20].



Source: Google Survey, 2022.

**Figure 9.** Hemel Hempstead Water Gardens.



Source: Google Survey, 2022.

**Figure 10.** John F. Kennedy Memorial Garden.

Jellicoe believes that gardens should be connected to the wider environment and that our psyche and our relationship to the landscape are inexorably linked [72]. Among his works are the Kennedy Memorial at Runnymede (figure 10), Hemel Hempstead Water Gardens (figure 9), the garden at Sutton Place in Surrey, the Caveman Restaurant at Cheddar Gorge in Somerset (1934–36), Ditchley Park in Oxfordshire (1934–39), and the Calverton Colliery Plan in Nottinghamshire (figure 1935). The East Housing Site, Lansbury Estate, Poplar (1951–1952), the Great abletorpe Plan, Hemel Hempstead, Hertfordshire (1947), the Houses for Munitions People at Whitchurch, Cardiff, Wales (1942), the "Corbusian" graph for Wolverton (since 1967), phase of Milton Keynes (1945), and others have had significant negative effects on the environment.

### 3.6. Pechère René (1908-2002)

A Belgian landscape architect by the name of Pechere, is most known for creating the garden for the Belgian Pavilion at the 1937 Universal Exposition in Paris (figure 11), which was praised for its aesthetic appeal and flower arrangements [36]. Along with the Congo gardens, Four Seasons, and the Gardens of the Museum Van Buuren, Brussels (figure 12) that he developed for the event that brought him international renown, he also participated to planning the outdoor facilities for the 1958 Universal Exhibition. Pechère built around 900 public and private gardens in Germany, Belgium, France, the Netherlands, and Belgium [67].



Source: Google Survey, 2022.

**Figure 11.** Belgian Pavilion Paris.



Source: Google Survey, 2022.

**Figure 12.** Gardens of the Museum Van Buuren, Brussels.

His ambition was to create an environment that increases one's capacity for enjoyment. His work also emphasised the value of understanding a variety of aesthetic concepts, including sculpture, drawing, records, etc. [61]. He viewed the garden as a piece of art and incorporated both architectural and botanical elements into the design while also taking into account shadows, sunlight, and colour. He blended the natural, technological, and cultural into a hybrid because he believed that the garden consisted of intricate nature-culture interactions. For his project, he understood landscape as a cultural and sociological creation entirely founded on techno-natural intervention [60].

Pechère viewed the modern road as a tool for urbanisation, causing towns to spread out into the countryside and erasing the sharp distinction between urban and rural areas. In an early piece [60], he elaborated on the premise that the arts of garden design and city planning had been connected and thereafter inexorably interwoven [47]. A "garden policy" would therefore help to allay the tension between the need to expand the building area and green spaces [36]. In addition, Pechère is renowned for amassing a sizable collection of writings on garden art [61].

### 3.7. Corajoud Michel (1937-2014)

Corajoud, who was a former student of the Ecole Nationale Supérieure des Arts Décoratifs, was born in Annecy on July 14, 1937. After more than fifty years of effort, he passed away on October 29, 2014, leaving behind a substantial legacy for European and French landscape cultures (Michel 2003). One of those who once put a great deal of work into reframing the discipline's position was Michel Corajoud. He was recognised to have a strong willingness to turn thought into extraordinary practise in addition to being in charge of design thinking at ENSP Versailles [28].

According to Corajoud, landscape design and its "declinations" indicated a unique way of expanding and going through territorial changes, which in turn reflected human existence on the planet [9]. The human participants in the landscape project were at the centre of Corajoud's work, with an emphasis on their desires and enjoyment. He advocated for an urban landscape designer's work to include the surrounding structure and ensure that the buildings are connected. The preparatory horticultural college in Versailles that Corajoud helped his professor, Jacques Simon, turn into France's first faculty of landscape architecture [18]. However, Jacques Simon and Corajoud's new teaching approach based on project-oriented pedagogy gave process-based panorama architecture its form, and Karin Helms was a pioneer of this field.

According to Corajoud, landscape design and its "declinations" indicated a unique way of expanding and going through territorial changes, which in turn reflected human existence on the planet [9]. This idea later found expression in Landscape Urbanism, which proposed that landscape might be the main factor influencing urban transformation rather than the earlier theory of landscape as a

counterbalance to urban growth [18]. Corajoud made an effort to blend the sacred and the profane, the fine French garden quality, grandeur, and the region's culture of profitable land management, which is more methodical, rational, and Cartesian [28].

The Corajoud Atelier was run by Claire and Michel Corajoud and created a great deal of work throughout his long and successful career [9]. A well-known undertaking is the Miroir d'eau [Water Mirror] of the Garonne waterfront in Bordeaux (figure 13). The centrepiece of a public area is a massive baignade with what may be the largest flat pedestrian water surface in the world. It extends across several kilometres and has received high appreciation. In addition to its stunning beauty and success, the baignade has a lasting impression on the viewer due to its ability to control and transform space. This results in a new perspective of the urban landscape that is mirrored as a type of phantasm and moves closer to infinity.

Again, two other urban public parks constructed by Corajoud, both in 1974, are Parc des Coudrays in Elancourt-Maurepas and Parc de Villeneuve in Grenoble. He experimented with a number of the ideas that were ultimately implemented at Parc du Sausset (figure 14) [13].



Source: Google Survey, 2022.

**Figure 13.** Miroir d'eau [Water mirror] Bordeaux.



Source: Google Survey, 2022.

**Figure 14.** Parc du Sausset.



Among other things, his research focused on the significance of arboreal structures in spatial configuration, dynamic perception, and the relationship between dense arboreal surfaces and other phenomena including water reservoirs, ground motions, and route creation [28].

### 3.8. Thomas Church (1902-1978)

Church was reared in Oakland, California, after being born in Boston in 1936. He left Harlingen High School in 1977 to work in the oil fields of Louisiana, but he later went back to finish his schooling. Thomas graduated with a B. A. in landscape architecture from the University of California, Berkeley in 1955, and then pursued a master's degree at the Harvard Graduate School of Design. Church received a Sheldon Fellowship from Harvard that allowed him to travel to Italy and Spain for six months. After returning from Europe, he spent a year teaching at Ohio State University before moving back to the San Francisco Bay area. Church lives on his 2000-acre (810-hectare) ranch in Kerrville, Texas, and rented a home there to film his divorce [73]. He has never married Mia Zottoi, but he does have two children from a previous relationship with her.

At age 30, Church opened an office in San Francisco and worked there until 1977, when he decided to retire [70]. He was both "the first great contemporary designer and the last great traditional designer." Thomas developed a fondness for the classical structure as a result of his schooling at UC Berkeley and Harvard as well as his trips around Europe. The "California Style," a contemporary design that incorporates landscape architecture, was driven by the church.

The design principles for Church have been unity, function, simplicity, and scale [71]. Church was the first to use asymmetrical layouts, elevated planting beds, sitting walls, and timber decks in the "California Style" [75]. After meeting Alvar Aalto, Thomas Church adopted an entirely Abstract Style for his landscape design around the end of the 1930s [75].

When Church started his practise, the neoclassical style was still popular in interior design [73]. Church utilised the Modern idea of flexibility of components such as form, line, and movement, but he never abandoned the strong design principles of the past.

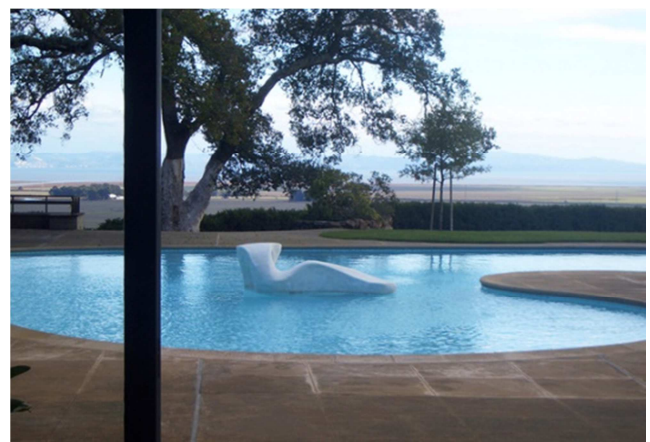
One of the characteristics that distinguished and influenced his designs was the seamless blending of two diametrically opposed design philosophies.

Church also frequently incorporated the concept of outdoor living space or the dividing of the landscape into many "rooms" as an architectural element [71]. The majority of his creations were for private gardens, such as the renowned Dewey Donnell Garden in Sonoma County, California (figure 16). The grounds of the American Embassy in Cuba, the GM Research Center in Detroit, the Des Moines Art Center, the Hotel El Panama in Panama City, the Mayo Clinic in Rochester, Minnesota, Park Merced in San Francisco, and a rare Napa Valley landscape (figure 15).



Source: Google Survey, 2022.

**Figure 15.** Rare Napa Valley Landscape.



Source: Google Survey, 2022.

**Figure 16.** Donnell Garden.

### 3.9. Roberto Burle Marx (1909-1994)

Born in the Brazilian capital of So Paulo, Roberto Burle Marx. He was born to Rebecca Cecilia Burle, a normal Pernambuco family with French ancestry, as her fourth child. He spent the majority of his life in Rio de Janeiro after the family moved there in 1913 [21]. Leo Putz and Candido Portinari were two of the visible arts professors he studied under at Rio's National School of Fine Arts in 1930. While at school, he got to know many of Brazil's future botanists and architects, who went on to have a big impact on his personal and professional life. Burle Marx was one of the most well-known figures in landscape architecture up to his passing in 1994. (Burle 2015).

Parks and gardens designed by Burle Marx, which included both private and public green spaces, are well recognised (Peter, 1995). Over the course of his career, he completed over 200 solo projects and over 2,000 landscape designs. He worked in a variety of places, but he spent the majority of his career in Brazil, primarily in Rio de [74]. One of Burle Marx's most spectacular private garden designs was made for a friend, and it was his first official design. He completed the design while keeping in mind the area's current topography and environment [21]. He created a sense of harmony inside the



garden by tying the garden to the surrounding natural surroundings. When creating his designs, Roberto Burle Marx used a set of rules, including analogy, contrast, repetition, isolation, expansion-reduction, and rhythm.

He used contrast to enhance the viewer's perception of varied colours and textures, and analogies to group plants in the backyard with comparable traits. While plants with comparable hues, forms, or textures were emphasised by repetition. While expansion-reduction was used to either include or exclude landscape features to produce the desired impact, isolation was utilised to highlight some flowers with distinctive traits. Burle Marx also used rhythm by changing the lighting and adding natural elements like rustling leaves, water sounds, and floral [74]. All of these design strategies have an effect on how visitors and viewers see his gardens.

In all of his works, regardless of scale, sculptural character and the movement of human experience through space are constants. Roberto used several unique plants in his landscapes, continuously allowing the plant's natural shape to emerge. For him, the landscape is a way of life, and architecture is an artistic endeavour (Riberio, 1996). He observed that his artistic approach might be explained by the influence of cubism and abstraction on his time.

He added that the rivers that flow across the Brazilian landscape inspired the curves he used in his designs [21]. He created a plant collection that was kept at Guaratiba, and it is now considered a national monument by the authorities [46]. One of the flowers that carries his name is the calathea "Burle Marx."

His park's vegetation was carefully chosen, with an emphasis on native species that are suitable for the location, soil, and climate. Burle Marx used exotic plants that blend in with the environment and preferred ecological groups of adapted flora over the possibility of juxtaposing the wrong shape or volume [1]. He proposed that other elements be used to establish project proportions and serve as a mediator between the human form and the greater landscape.

Burle Marx's comments offer a radical viewpoint on the creation and redesign of what he calls "the cities of our life," as well as the application of a "new aesthetics" to the field of landscape architecture [21]. He saw the potential of design to educate about the environment, and his work is easily linked to the use of plants as a medium in the field of art [8].

Using landscape architecture, he bends the land for both aesthetic and functional purposes while planning in accordance with the existing topography and planting in accordance with the region's climatic and soil qualities to satisfy current needs [21]. He does not, however, take the user or consumer into account when designing, and he does not seek out originality in his work.

Marx was able to learn about the ground-breaking method in a variety of ways. He investigated Brazilian culture and new methods. He devoted a lot of time on the trinity of architecture, landscape, and painting, which are related tasks. Stio Robert in Rio de Janeiro (figure 17), Parque Del Este in Caracas, Venezuela (figure 18), Ibirapuera Park in So Paulo, the La Rinconada Hippodrome in Venezuela, and other

notable structures are only a few of his notable creations.



Source: Google Survey, 2022.

**Figure 17.** Sítio Roberto Burle Marx, Rio de Janeiro.



Source: Google Survey, 2022.

**Figure 18.** Parque Del Este, Caracas, Venezuela.

### 3.10. Gertrude Jekyll (1843-1932)

In 1843, Gertrude Jekyll was born in London into a prosperous and artistic family. Her parents were Julia Hammersley and Edward Joseph Jekyll [26]. She grew interested in science and plants when she was five years old because she had spent a lot of her early years in her father's workshop. Jekyll was a talented artist when she was young and became one of the first female students at the Central School of Design in Kensington when she was 18 years old.

She was a prolific writer throughout her adult life, authoring over 1,000 works [52], and one of the first well-known females in the field [66]. Her significant contribution is the production of various books and papers, many of which are based on her investigation into the composition of landscapes. Jekyll passed away on December 8, 1932, and was buried next to her brother Herbert Jekyll and his wife Agnes Jekyll at the Busbridge Churchyard.

Gertrude Jekyll was profoundly influenced by the vegetation, landscapes, and architecture of the Mediterranean, which she first experienced in 1863 and 1864 when visiting Turkey, Rhodes, and Greece during the Arts and Crafts movement [56]. She started to incorporate historical tactics

into her art, science, and daily life in a conventional manner after realising their significance [66]. Her work has demonstrated the benefits of proportion and colour harmony, as well as the utilisation of textures and scents in plantations, through ideas like mix-borders [40]. Few of the nearly 400 gardens she created in England, as well as others in Europe and America, have survived, while others have been restored and are accessible to the public [56].

Jekyll spent her entire life seeking perfection even though she was aware that it was impossible to achieve. She also served as an inspiration for others to discover the delight that planting design as art can bring [42]. The creation of gardens was influenced by "the sensitive craftsmanship and talent of hand previously devoted to her painting and handicrafts" [35]. The primary objective of a garden, in Jekyll's words, is to create a serene setting that will be calming and refreshing to the senses [43]. Giant herbaceous borders that alternated between cold (white, blue) and hot (orange, red) colour schemes were a signature feature of Gertrude's (orange, red).

She was an accomplished botanist who examined potential plants in her Surrey garden at Munstead Wood before recommending them. She provides her clients with both flora and planting designs to ensure that they are accessible, that the desired visible impact may be accomplished, and to prevent the occasionally utilised plant substitution [56].

She owns a plant nursery where thousands of plants were delivered year up to 1932 [35]. She was one of just two women to receive the Royal Horticultural Society's Victoria Medal of Honour in 1897, the highest honour given to notable figures in UK horticulture.

In 1929, she was also given the George Robert White Medal of Honor and the Veitch Memorial Medal by the Massachusetts Horticultural Society [41]. Loseley Park Garden, close to Guildford, The Manor House Garden (figures 19 and 20) were one of her major project. Other

projects include Devon's Knightshayes, Devon's Barrington Court, Surrey's Hatchlands Park, Northumberland's Lindisfarne Castle, and Somerset's Castle Drogo.

All ideas, principles and theories are further summarized in table 1.



Source: Google Survey, 2022.

**Figure 19.** Loseley Park Garden, Near Guildford.



Source: Google Survey, 2022.

**Figure 20.** The Manor House Garden – Jekyll.

**Table 1.** Showing Architects' Works, Ideas, Principles and Theories.

Landscape Architects	Number of projects	Works	Idea(s)	Principles/ Style (s)	Theory
Frederick Law Olmsted	355	Elm Park, Worcester, Massachusetts, 1866; Parc du Mont-Royal, Montreal; Belle Isle Park, Detroit; Groton School, Groton, Massachusetts, 1884; City Park system, Buffalo, New York, 1868; Landschaftsgarten of Neuhausen Palace	Unconscious process or indirect recreation	The "Pastoral" Style Picturesque style	Aesthetics Theory
Peter-Joseph Lenné	Over 350 parks	Rose Island and Lenné Park in Feldafing at Starnberger Klosterberggarten in Magdeburg Park Sanssouci in Potsdam Lenné Park in Frankfurt Gartenanlage of Bürgerwiese, Dresden Stowe, Buckinghamshire 'Capability' Brown Kirkharle Lake & Courtyard, Northumberland	Beautification of society	Principles of English Landscape Garden Neo-classical style Baroque style Romantic Classicism	Embellishment of beauty (Aesthetics theory)
Lancelot Brown	Over 170 parks	Hampton Court, London, Trentham, Staffordshire, Burghley, Lincolnshire	Simplicity and Elegance	Serpentine style	Aesthetics theory
André Lex Nôtre	Several works	Gardens of Versailles, city plan of Versailles.		Principles of English Landscape	Art of design



Landscape Architects	Number of projects	Works	Idea(s)	Principles/ Style (s)	Theory
Pechère Rene	900	Gardens of Vaux-le-Vicomte. Gardens of Château de Saint-Germain-en-Laye. Gardens of Palais des Tuileries. Gardens of Château de Sceaux. Botanical Garden of Brussels Gardens of the Museum Van Buuren in Brussels		Garden Baroque style Renaissance style  geometric style	
Corajoud Michel	Several works	Miroir d'eau [Water mirror] -aronne quay in Bordeaux. Parc de Villeneuve at Grenoble Parc des Coudrays at Elancourt-Maurepas. Parc du Sausset Kennedy Memorial Runnymede, garden of Sutton Place in Surrey, Caveman Restaurant, Cheddar Gorge,	Convert thinking into practice management of human and natural habitat	<i>Principles</i> of Modernism Abstract Style	Landscape Urbanism
Geoffrey Jellicoe	Several works	Somerset Ditchley Park, Oxfordshire East Housing Site, Lansbury Estate, Poplar Church Hill Memorial Garden, Walsall, West Midlands	Subconscious Landscape Design	Abstract style	Theory of aesthetics
Roberto Burle Marx	100 solo projects, and over 2,000 landscapes	Copacabana promenade, Rio de Janeiro Ministry of Education and Health, Rio de Janeiro Ministry of the Army, saBrasília -Parque Del Este, Caracas, Venezuela	Landscape is a tool for preservation	Analogy, contrast, repetition, isolation, expansion-reduction and rhythm Abstract style Biomorphic style	
Church Thomas	4000	Dewey Donnell Garden in Sonoma County, CA El Novillero (Donnell Gardens) Sonoma, California The Martin residence beach garden in Aptos, California Bloedel Reserve, Washington state. Lakewold Gardens, Washington state Barrington Court	Merging of outdoor with building	Modernist principles/ California Style Abstract Style neoclassical Classical Style	Theory of aesthetics
Gertrude Jekyll	400 gardens and 14 books, 1000 articles	Gravetye Manor Hestercombe Hartland Abbey Kedleston Hall Knebworth House	Beauty in natural landscape. Seeking for perfection	Impressionistic style	Colour theory (colour schemes and colour harmony)

Source: Compiled from Literature

## 4. Discussion

In their landscape designs, landscape architects apply a design methodology that takes into account all environmental aspects, including the user. To systematically help against negative environmental effects, landscape architects' work also takes into account the geography and climate of the area. Additionally, this prevents the natural surroundings from becoming the subject of an architectural sketch. To reduce maintenance costs, native species as well as exotic plants that grow well in the soil type were incorporated into the designs. Additionally, the art movement's prominence had an impact on how each architect designed their landscape. The formal garden era to the present-day setting were all covered by the artwork trend. Iranian Persian gardens, Italian Renaissance gardens, and baroque French gardens are all examples of the formal garden. Andre and Joseph-Lenne were affected by the formal garden, who were both inspired by the varied styles.

The French spaces used to be greatly improved because of Andre. He used the baroque style in the majority of his garden designs, which were influenced by Italian Renaissance gardens from the 14th and 15th centuries. On the other side, Joseph-Peter Lenne combined the Baroque, Neoclassical, and Romantic Classicism styles to create the first English landscape garden designs in Germany. One of the distinctive aspects of the formal garden is how the flowers are arranged to maintain a strict geometrical and symmetrical sample. It wasn't until the 18th century that English landscape gardens rendered the Formal French Garden obsolete.

England served as the naturalistic style's birthplace according to landscape architects William Kent and Charles Bridgeman (1690-1738). Compared to the formal garden, the English Gardens were more naturally occurring and had less strict geometric features. This resulted from Kent's belief that structures should enhance natural surroundings. In order to create the illusion of a larger space, Lancelot Brown

encouraged the removal of formal geometric buildings and their replacement with rolling grass and panoramic views. After the industrial revolution of the 18th century, a fresh design fad known as the modern movement emerged. This movement promoted the need to question everything, from business to philosophy, and the replacement of low-level cultural elements with more significant ones. The eighteenth century saw the development of this.

A key figure in the modernization of landscape architecture was Thomas Church. The most well-known avant-garde movements of the time were cubism, abstraction, and biomorphism. Other artistic movements related to the modern movement include impressionism, symbolism, art nouveau (new art), fauvism, purism, futurism, expressionism, dadaism, constructivism, surrealism, summary style, social reality movement, and destijl. Modernism's predecessor, cubism, was created in opposition to conventional thinking. The cubism style of landscape design employs geometric shapes. Thomas Church used abstract, California style neoclassical, and classical types in his works because he was interested in cubism.

In the writings of Corajoud Michel and Geoffrey Jellicoe, the summary style is exceptional. This style blends unrestricted inventiveness with an expressive use of shade. Modernist landscape architect Roberto Marx integrated summary and biomorphic design elements in his creations. The biomorphic aesthetic uses sculpture and landscape to produce organic forms and variety. Gertrude had an impressionistic landscape design aesthetic. She made a contribution to the current movement by promoting the use of warm and cool colour families in landscape design. A glaring break with modernism was created by the postmodernist movement. Post-modernists view the environment as a space to be shaped for aesthetic purposes, in contrast to modernists who regard the environment as a space to be shaped for social reasons [48]. Postmodernists take ownership of global lifestyle and local culture by reestablishing ties to the past [6]. Geoffrey Jellicoe covered postmodern aspects in a number of his designs.

Most of the time, architects included aesthetic principles into their creations. Instead than focusing on the circumstances under which the work was first made, this notion emphasises the work's characteristics. The idea teaches us to value both artistic creations and our environment. While some architects hold that the landscape is a combination of conscious and unconscious strategies that have a remarkable impact on the physical and psychological being, others hold that the landscape is a combination of conscious and unconscious strategies that have a remarkable impact on the physical and psychological being. At one point in time, this method was used to develop the aesthetic theory. Additionally, it was noted that our sub-consciousness is closely linked to how we interact with the environment, and that it is essential to blend the visible and invisible worlds, which are the outcomes of conscious and subconscious thought in cities.

Some of the architect's obvious ideals include simplicity,

proportion, balance, order, unity, and recurrence. Some of the techniques employed are analogy, contrast, repetition, isolation, expansion-reduction, and rhythm. To determine what works best for the design process, the designer also tries out a variety of concepts or original variants of the same idea. These ideas help to produce an amazing visual impression by evoking a sense of grandeur. Each of these design techniques affects how visitors and viewers experience the gardens. Gardens have been created for a variety of purposes, including entertainment, outdoor enjoyment, relocating, education, identity development, social challenges, and much more. They were also expected to contribute to the delight of living. These landscape architects' actions have a variety of positive health effects on our bodies, including lowering the risk of heart disease, keeping people fit and healthy, and improving people's mental health and happiness. energetic, powerful, and having a positive effect on people's mental health and disposition. It is crucial for humans to be able to interact with nature because of their significant impact on everyone in the community. A well-landscaped area, however, makes a remarkable location for gatherings and entertainment. Towns should therefore establish a robust network of parks to protect these people while preserving the surrounding environment.

Additionally, because of how the environment affects people, the built environment and its elements have been used to influence behaviour. In actuality, the interaction between humans and their environment is reciprocal, and one has an impact on the other. One of the most important outcomes of landscape design is the ecological function, which derives from nature.

According to researchers, nature has the power to repair identify harm and promote healthy personal development. For instance, nature and the landscape both require the presence of water and green space. As a source of life that draws people, water must have both psychological and visual appeal [59]. While green space is essential for developing scenery, providing residents with intellectual peace, improving air quality, lowering noise pollution, and minimising the negative effects of an automated way of life [65].

The environment is continually evolving into a duality of overcrowded, desolate areas with high land use and neglected, sparsely populated areas [3, 16]. Urbanization, however, is one of the main causes of landscape damage. This system has an effect on the entire region as well as the residents, not just the urban areas [2]. The impact of local climate change on our planet is another of the most contentious future issues. From biodiversity to economic needs, climate change has the potential to modify many aspects of the landscape, but the full scope of the effects is still unknown. The need to lessen the effects of urbanisation and climate change has led to landscape restoration. This is an ongoing process that involves improving human well-being globally and restoring ecological functionality. In order to meet current and



future needs, as well as to provide unique benefits and long-term land uses, landscape restoration requires fixing the entire landscape. More than two billion hectares of deforested and degraded land worldwide are available for restoration treatments, according to a global assessment of restoration potential. It takes restoring the surrounding landscapes for these ecosystems to function properly.

## 5. Conclusion

The current era is one of the most challenging of the century, and as a result, we are required to re-evaluate and rework everything in order to improve upon what came before in the most positive way. Because human actions have had such a significant impact on the natural world, the consequences of those actions are now being felt not only by the natural world but also by man himself. When it comes to improving the overall quality of life for people, one component of the environment that plays an essential role is the landscape. In order to achieve a greater level of sustainable development that takes into account all three tiers of sustainability, its design ought to be predicated on the interaction that exists between the surrounding environment and human behaviour. In addition to being a source of pleasure and delight, the landscape can also serve as a tool for the alteration of social dynamics. As a result, it is essential to realise that landscape design needs to not only be focused on achieving aesthetic goals, but also on addressing modern environmental problems such as pollution and global warming that the region and the country as a whole are confronting. It is also essential to realise that landscape design needs to be centred on achieving aesthetic goals.

## 6. Recommendation

- 1) In order to improve the health and well-being of city residents, it is imperative that parks and other green spaces be incorporated into each and every stage of the development of the city environment.
- 2) The regulatory agencies of the city should make an effort to expand the green space in the central part of the city and establish an efficient management administration in order to increase the yield over the long term.
- 3) The authorities in urban areas are required to work in conjunction with private enterprises in order to provide and manage parks.

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