

# São Paulo's Topography and the Utopian Democracy

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*...physical geography is primordial and absolute for architects. for others, somehow, it's a realm of choice and interpretation. (1)*

Brazil's two major cities provide a study of historical and geographical contrasts. Maybe from an outside overview Rio de Janeiro is the national epicenter of social life as well as a city of spectacular topography. Its contrasting, Sao Paulo, currently the commercial and financial hub of the country, has grown from a base level plain 750 m above sea level, into a dynamic, modern metropolis steeply dissected by the river Tiete and its tributaries. Travel brochures place an emphasis on Sao Paulo's rich diversity rather than its topographical qualities, while Rio is widely known for its beautiful natural landscape. (2) (FIG. 1) Actually, as is the case with Rio, Sao Paulo's topography, its deep, quiet ravines, plateaus, bridges and its stunning coastal hillside, has served as a major source of inspiration for architects.

The architecture within these cities has also some intrinsic [local] features. Rio was the main exponent of what has been identified as the Brazilian style since the fifties, a regionalist baroque variation of the Modern Movement. Oscar Niemeyer, whose work consists largely of free, exuberant forms that appears to parallel the city's hillside configuration, most prominently represents this style. In the early 1940s, at Pampulha, an outpost of Belo Horizonte, Niemeyer had already counteracted the modernist dogmas of form and function with the plastic freedom enabled by reinforced concrete. "I was attracted to the curve," said Niemeyer of his attraction to the liberated, sensual curves afforded by emerging technologies. "I deliberately disregarded the right angle and rational architecture that is designed using rulers and squares, to boldly enter the world of curves and straight lines offered by reinforced concrete." These new forms that became the emblematic signatures of his work reflect not only the technological advances of his time, but also the inspirational source of his homeland. "This deliberate protest arose from the environment in which I lived, with its white beaches, its huge mountains, its old baroque churches, and its beautiful suntanned women." (4)

Contrasting to Niemeyer's inclination towards modernist experimentation, Sao Paulo's main architectural practitioners of the 1950s designed with a predilection for simple forms, raw, exposed materials and unconcealed service pipes. Purity of materials and formal restraint were submitted as political expressions of moderation, appropriate for a developing country. This reductive aesthetic promoted the belief that by restraining from establishing a "Brazilian identity" through architecture, designers could preserve the virtuosity of the existing Brazilian cultural identity. Vilanova Artigas, the most prominent architect from Sao Paulo of his generation, openly disregarded European and American influences on his own work. He has never accept the expression "Brazilian style"

The native population of Sao Paulo was originally designated to the triangular plateau region, whose sides were defined by the rims alongside the Anhangabaú or "the devil's hideout" and Tamanduateí River [tributaire of the Tiete] . It was on the borders of this rim that the city of Sao Paulo was found in 1554. The Anhangabaú defined the western edge of the Jesuit village of Sao Paulo, and the Tamanduateí river, determined its eastern one. Extensive panoramic views could be enjoyed toward east as the plateau did not rise back up on the opposite riverside.

The village of Sao Paulo remained within the boundaries of this naturally isolated and protected plateau until the end of the eighteenth century. Transportation of goods and people by mule across the twenty-meter deep, one hundred and fifty meter wide Anhangabaú, was slow and extremely inefficient. Once the need for protection had vanished, the gorge became a major development obstacle to efficient transportation infrastructure. In 1892, Jules Martin, a French printmaker, would assemble the first industrial steel bridge over the river and through the gorge. (FIG.2) With a clear sight-path, the viaduct contrasted Sao Paulo's narrow canyon streets. This marked the beginning of Sao Paulo's expansion, which transformed a small town into the 20 million people city that Sao Paulo is today.

The construction of the viaduct, named "The Tea" (Viaduto do Cha) after the tea farms that colonized the river valley, stimulated new development on the western side of the Anhangabaú. The nearby municipal theatre became the center of the city's social life, but the most important new amenity was the Anhangabaú Park, designed by French landscape architect Joseph Bouvard in 1911. Devised to integrate the valley gorge into the overall urban structure of the metropolis, the park (inaugurated in 1917). It provided a new center associated with a progressive, dynamic and industrial city. Residents of the new town center distanced themselves from the old center, which had been created from the colonial fabric associated with the Brazilian monarchy whose reign ended in 1889. With the transfer of capital from the coffee farms to the industrial manufacturing sector, already growing during the first decades of the twentieth century, the park provided a much-needed set of green lungs to an increasingly densifying city. Between 1905 and 1930, Sao Paulo's population tripled in size. (7) Claude Lévi-Strauss reported that in 1935, "the people of São Paulo liked to boast that their city was expanding at the rate of one house every hour." (8)

Planning debates centered on the rapid pace and unregulated nature of growth drew in reputable experts such as Le Corbusier, who sketched planning proposals during his short visit to Sao Paulo in 1929.

Architect Francisco Prestes Maia published the *Estudo de um Plano de Avenidas para a Cidade de Sao Paulo* (Study for a Plan for the Avenues of Sao Paulo) in association with João Florence de Ulhôa Cintra, around the same time as Corbusier's visit. (9)

Joseph Stuebben, George Herrold, Harland Bartholomew, Daniel Burnham and others, produced a "study" aimed at rationalizing traffic, enlarging the central business district and giving the city an appropriate identity based on its growing commercial importance. Drawing influence from French traffic specialist Eugene Henard, the plan consisted of a concentric radiating scheme intersected by circular rings. The latter were located on the stretch between the Sao Francisco and Santa Ifigenia viaducts at the center of Sao Paulo. The proposal modified Joseph Bouvard's picturesque winding park at the Anhangabaú with a formal axial layout in which all endings were accented with monumental neo-classical buildings that simultaneously operated as viaducts and majestic palaces.

The focal point of the newly proposed master plan was a space that Prestes Maia identified as Sao Paulo's main "visitor's hall"(la sala de visitas); a closed-off area that formed an urban room within the city. However, Maia's proposal failed to acknowledge the inherent grandeur of the Anhangabau as a vital part of the region's character. (FIG. 3) To materialize this "room," the original steel viaduct of The Tea had to be demolished and replaced with a bridge that Prestes Maia argued, "had to be rebuilt with a grand, slim, monumental, reinforced concrete arch that unlike the current structure of crossed bars. would not obstruct the view," (10) (FIG. 4). Made up of clean, simple lines, the original viaduct was hardly the "obstruction" Prestes Maia claimed that it was. Nevertheless, due to Maia's influence, Elisario Bahiana, winner of the national competition of 1938, replaced the original with his winning design. Prestes Maia pursued a neo-classical approach so de-contextual and universal in character, that it would have been just as relevant in Daniel Burham's 1893 Chicago World's

Columbian Exposition as it was to this region of Sao Paulo.(FIG 5) Maia's indifference to Sao Paulo's landscape was most clearly exemplified through his attempt to force a system of traffic into the circular loop of his idealistic diagram, blatantly disregarding the original triangular form of the plateau.(FIG 6)

Taking inspiration from the undulating Sao Paulo plateau divided by rivers and bridges, Le Corbusier demonstrated that a sensitive approach to designing for an existing landscape was not incompatible with a bold, geometrically simple and monumental design. (FIG.7) Sketched during his short visit in 1929, Le Corbusier's design for Sao Paulo was structured by two viaducts that spanned 45 kilometers in length and connected two hills from summit to summit, crossing at approximately a right angle. The straight horizontal lines of his sketches represent vast expressways coming into the city, a major component of his plan. He stated: "You won't fly over the city in your automobiles, but you will drive over it. Do not build expensive arches to hold up your bridges, but carry your bridges on reinforced concrete structures that will contain offices in the center of the city and homes in the outskirts."<sup>1</sup> Le Corbusier's plan left the bottoms of the valleys un-built and available for public spaces such as recreational areas and parking. "You will plant palm trees in them, sheltered from the wind. Besides, you have already created the beginning of parks for the trees and spaces for automobiles in the center of town." (11) Unlike Prestes Maia, Le Corbusier's proposal was a vision for Sao Paulo based on an imaginative leap from the existing conditions.

Le Corbusier's proposal revealed traces of other planning ideas, such as the "linear city" proposed by Arturo Soria (1892). Soria believed that the development of efficient mass transit systems capable of transporting passengers across vast distances and monumental structures, such as the Roman Aqueduct, was crucial to the success of building large cities. But while the aqueduct was built using structural masonry arches that allowed for visual permeability, Le Corbusier's sketches (12) display two opaque buildings that intersect at different levels. (FIG. 7 & 8) Although the boldness and the magnitude of the scale of Le Corbusier's vision condemned it to remain an idea on paper, the influence of his proposal was arguably more widespread than Prestes Maia's. Though the latter was able to fully realize his plans for the city after becoming the city's mayor from 1938 till 1945 and again in 1961 for another 4 years, Corbusier's unrealized endeavors continued to exist as seminal influences.

One of the buildings most heavily influenced by Le Corbusier was the Museum of Art in São Paulo (MASP). The museum was commissioned by Pietro Maria Bardi in 1957, and designed by his wife Lina Bo Bardi, an architect who emigrated from Italy to Brazil in 1945. Completed in 1968, the museum was located on Paulista Avenue, which had become Sao Paulo's primary city street. (FIG. 9) The building consisted of an immense glass box that rested between two thin slabs of concrete and housed a collection of paintings by prominent artists from around the world. The glass box, inspired by Mies Van der Rohe's Crown Hall, appeared to hang weightlessly from two, large, bright, orthogonal concrete arches, and hovered seventy meters above the ground. The museum framed the Trianon Park and a multilane thoroughfare called Nove de Julho Avenue (built on the Anhangabau valley) that ran a hundred feet below the museum across the Avda. Paulista. The impermanent exhibitions, contemporary art, and the auditorium were located in the subterranean portion of the museum. Between the airborne crystalline box and the half-buried subterranean portion was a void that served as a public square. (13) This space maintained a constant tension between the two areas it connected; the floating box and the subterranean galleries.

While Mies van der Rohe's influence was most apparent, Le Corbusier's was perhaps most profound. Pietro Maria Bardi inaugurated his directorial debut in 1950 with an exhibition of Le Corbusier's work, coordinated by Lina Bo Bardi. In fact, the Bardi's' first completed built work, "The Glass House" of 1951, contained many elements that characterize Corbusier's Villa Savoye at Poissy of 1929, including the arrival entrance below pilotis, the floating volume above the ground, the view of the surrounding landscape, and a white stucco finish. Rather than simply incorporating the forms of Corbusier's structures, Bo Bardi's later design for the Museum of Art incorporates Corbusier's influence on a more conceptual level. For example, both Le Corbusier and Bo Bardi proposed that their buildings adapt to the registers of the landscape. While the first made only an attempt, the latter's achievement of the effect was apparent as one traversed from the top to the bottom of the museum in section. More significantly, both projects featured intersections as a prominent

design premise. Bo Bardi's intersection was implied by the flow of the Nove de Julho to the Parque Trianon in one direction, and the intersection of the museum in the other. Le Corbusier's plan centered on the physical and actual interpenetration of the two intersecting buildings. The most striking element in Bo Bardi's work was the powerful idea of the bridge as a physical reality. The building that extended over the plaza possessed the metaphorical significance of a bridge that is at once a threshold as well as a pause in a large continuum. (FIG.9)

The idea of a bridge as a structural feat and as an interval in a field became recurring themes in Paulista architecture. While the landscape of the plateau intersected by the river gorges must be considered part of the inspiration, other factors also contributed to it. Architects were being trained at the University of Sao Paulo (USP), an institution that continued the engineering tradition of the Polytechnic School that preceded it. An emphasis on structural forms and engineering were infused into the curriculum of the university's architecture program. The availability of reinforced concrete, a very common and relatively cheap construction material, further justified the burgeoning penchant for strong structural expression.

These elements were certainly present in Joao Batista Vilanova Artigas' work, and until his death in 1985, he was considered the most influential Paulista architect of his generation. Educated at the Polytechnic School before the founding of the University of Sao Paulo, Vilanova Artigas received formal training as an engineer from a cadre of instructors that included important conservative personalities such as Prestes Maia. Initially influenced by Frank Lloyd Wright and later by Le Corbusier, Vilanova Artigas' formal vocabulary became geometrically simpler as his career progressed. By maintaining a formally restrained language and by staying true to his materials, he thought he was advancing a new construction ethic appropriate for Brazil's stage of development. Artigas firmly believed that architecture could be used as an instrument of political and social transformation.

For Artigas, buildings were not objects but rather like pauses in the landscape. Many of his projects reflect his exploration of the potential for continuity of the built and natural environments. His works often utilized level changes of double and triple height voids, and the use of mezzanines linked by ramps, in order to instill a sense of accessibility throughout the space. Artigas' built works incorporated their topographical context through the use of the elimination of load-bearing walls below large free standing roofs that established fluid connections between the inside and outside.

Vilanova Artigas added a territorial dimension to his building proposals when he claimed that the other bank of the river could become habitable space by means of a bridge. He added that the station and the airport were not dwellings, but "instruments," or bridges that enabled space to become universal. For Vilanova Artigas, the bridge illustrated the idea that architecture could exist as simply a subtly distinct space within a larger continuous space: "From his dwelling, primitive man would have crossed his no less primitive threshold to take possession of a larger space." (14)

Artigas would use the idea of the bridge repeatedly in his built work. For example, in his boathouse project for the Santa Paula Yacht Club (FIG.10) he created a boat-shelter whose roof could be used as a bridge structure that was supported by two pilons. The Faculty of Architecture and Urbanism at the University of Sao Paulo, which he designed in 1961 and finished in 1969 (FIG. 11), is the most vivid example of the idea of the 'bridge' and his conception of spatial continuity. The project used ramps that functioned as bridges and spanned between the two wings of the building and a floating roof covered the entire structure. In order to streamline this space, Artigas omitted any doors from his design to allow for an uninterrupted spatial flow between the campus, the atrium and even studio spaces.

The opportunity to explore the idea of spatial continuity at the urban scale emerged for Vilanova Artigas in 1974 when the EMURB, a municipal urban planning corporation, asked him to remodel the Anhangabaú, which was seriously afflicted by incessant traffic-related accidents. The EMURB requested that the 500m stretch between the Bridges of the Tea and the Santa Ifigenia, be the site of the remodeling. Artigas chose instead to design a thirteen-kilometer long area stretching from the River Tietê in the north, to the Pinheiros

River in the south. He selected this area because he believed that the Anhangabaú required a sense of enclosure to assume the intimacy of an established urban space. It is apparent in this proposal that Artigas valued the regional dimension subsumed in the transitional character of the old riverbed. Artigas intended to recapture the sense of monumentality of arriving into the city by adding two wide sidewalks connected by footbridges along the valley's edges. In addition to providing the city with a grand entrance, the wide pathways also provided a space for local activities and leisure. (FIG.12)

Vilanova Artigas' plans for the Anhangabaú were shelved by the military dictatorship that governed Brazil from 1964 to 1984. However, the increasing traffic congestion and pedestrian accidents, partly caused by an unremitting population increase, created pressure to resolve the enduring problems. In 1981, the EMURB and the IAB (Institute of Brazilian Architects) called for an open national competition to remodel the gorge. A team headed by Jorge Wilhelm proposed the winning design. Their scheme covered the motorway with a new concrete deck that reduced the depth of the Anhangabaú and made it twice as shallow, reducing Sao Paulo's most powerful topographic feature into merely a shadow of its former self. The construction of the motorway below eight hectares of a lifeless "plaza," got rid of many of the contradictory but positive forces operating on this area; it eliminated the simultaneous presence of automobiles and pedestrians, as well as a sense of enclosure and the regional pride that made the Anhangabaú the heart of Sao Paulo.

Paulo Mendes da Rocha, a follower of Artigas, also used the landscape as his primary source of inspiration. His work pursued what he called "força geografica"(geographic force), an ephemeral quality contained in the land. He admired Brazil's Santos Dumont Airport and compared it to the city of Venice because it exhibited an elusive uncertainty that straddled the boundaries between architecture, infrastructure and landscape. (16) For de Rocha, buildings in this ambiguous territory cannot be understood as fortified shelters but as spaces that establish only a subtle difference within a path. He considered his buildings analogous to bridges or houses that "one enters through one door and exits through another." (15) Paulo Mendes da Rocha's buildings are a temporary demarcation defined within a larger territory, and this quality is always present in his work.

The pavilion at the underground exit of the Praza do Patriarca is a strong example of this architectural philosophy. The pavilion has a striking roof canopy hung from a steel arch that provides protection from rain and creates a pause, or an interval for the human flow entering or coming out of the underground station. This "pause" is conceptually a bridge; a zone that establishes a different area within a continuous stream. It is in the Brazilian Museum of Sculpture that Paulo Mendes da Rocha illustrates this idea most clearly. Designed as an orthogonal twelve meter wide and sixty meter long orthogonal arch that spans over an artificial concrete ground that shelters the gallery, the entire museum acts as a massive public shade structure.(FIG.13) The concrete arch is placed against the main street, suggesting a fragment of Le Corbusier's sketch for Sao Paulo and a commentary on Bo Bardi's MASP (Art Museum of Sao Paulo). It is also Mendes da Rocha's own reinterpretation of Artigas' idea of the interval as an establishment of differences within the continuous space of the landscape. Mendes da Rocha believed that this notion was particularly poignant in the Americas, where land was still being settled: "Our eyes turn toward the notion of building cities in nature, establishing new rationales about the state of the waters, plains and mountains, the spatiality of a continent, and in new horizons for our imagination in the shape and ingenuity of the things we are destined to build." (17) (FIG. 14)

## Conclusion

In a financial and cultural capital where the elites avoid sharing space with the impoverished masses, the notion of an open, fluid city was at best a fragment of a utopian ideal and at worst an unrealistic form of escapism. Socially stratified and segregated, Sao Paulo is typified by an extreme contrast between the rich and the poor and the spaces that they inhabit. For Paulista architects, the idea of a spatial continuum represented a denunciation of the status quo and an expression of Brazil's utopian longing for an interracial dialogue and social equality. For Mendes da Rocha, "the flower of all knowledge is the city, and the architect's obligation is to imagine it for everyone so that it may bloom." Even if the idea was an illusion or an unattainable dream,

the geographically conscious approach to architecture captured both the vastness of Brazil's landscape and a sincere desire to create a better world for all of humanity. Summarizing the spirit behind the Paulista school, Mendes da Rocha has stated: "I think it is very important that we never lose our belief in the metaphor that America is a 'New World,' where dreams and desires may one day come true. If this is lost, we have nothing left."<sup>(18)</sup> In their idealistic pursuit, Paulista architects availed themselves of the geography in which they lived, as inspiration for designing the fragments of their utopian dreams.

Notes:

- 1) Mário Pedrosa, "Dos Murais de Portinari aos Espaços Públicos de Brasília". Organização de Aracy A. Amaral. in São Paulo, Perspectiva, 1981 p.255.
- 2) Brian J. Godfrey "Revisiting Rio de Janeiro and Sao Paulo" in Geographical Review, January 1999, Vol. 89 pp. 94-121.
- 3) Elisabetta Andreoli, "The Visible Cities of Sao Paulo", in Ian Borden, Strangely Familiar: Narratives of Architecture in the City. London, New York: Routledge, 1996.
- 4) Niemeyer, Oscar. The Curves of Time: The Memoirs of Oscar Niemeyer. London: Phaidon, 2000. pp.62, 169-170.
- 5) Dekker, Zilah Quezado. Brazil Built: the Architecture of the Modern Movement in Brazil. London: SponPress, 2001. pp. 200-201 "Today, Brazilian Modern architecture is progressing in such a way as to serve as propaganda for any commercial villainy .... While at the same time reinforcing the penetration of imperialism, giving it cover to enter without being noticed through the doors of cultural movements. ... For the progressive architects in Brazil, the language of Le Corbusier, in this book , is the language of the worst enemy of our people, American imperialism. It is up to us to reject it."
- 6) Green, James Naylor. Beyond Carnival, Male Homosexuality in Twentieth Century Brazil. Chicago, London: University of Chicago Press, 1999. p.94.
- 7) Styliane Philppou, "Challenging. The Hierarchies of the City: Oscar Niemeyer's Mid-Twentieth-Century Residential Buildings?". <http://www.tudelft.nl/June 2008>.
- 8) Lévi-Strauss, Claude. Tristes Tropiques: An Anthropological Study of Primitive Societies in Brazil. Translated by John Russell. New York: Atheneum, 1965. p.101.
- 9) Maia, Francisco Prestes. Estudo de um Plano de Avenidas para a Cidade de São Paulo. São Paulo, Melhoramentos, 1930. Information on the history of the Anhangabaú can be found in José Geraldo Simoes Júnior's Anhangabaú, Historia e Urbanismo. Sao Paulo: Senac Editora, 2003.
- 10) Ibid. p. 74 " O viaducto do Cha , supoem-se reconstruido: nao mais a estrutura actual, reticulado de palitos, mas um grande arco de cimento armado, material que permitirá uma silhuetta monumental mas sufficientemente esguia para nao obstruir a vista."
- 11) Le Corbusier. Precisions on the Present State of Architecture and City planning: with an American Prologue. Cambridge, MA: MIT Press, 1991. p. 241.
- 12) Bardi, Pietro Maria. Lembranca de Le Corbusier, Atenas , Italia , Brasil. São Paulo, SP, Brasil: Nobel, 1984.

- 13) de Oliveira, Olivia. *Subtle Substances: the Architecture of Lina Bo Bardi*. São Paulo: Romano Guerra; Barcelona: Gustavo Gili, 2006. p. 265.
- 14) “Architecture and Construction” in Bardi, Instituto Lina Bo e P.M. Vilanova Artigas, Sao Paulo: 1994. “A partir da habitacao , teria o homem primitivo transposto sua nao menos primitiva “solera” para apropriarse do espaco da habitacao em escala mais amplia. A outra margem de um rio passa a fazer parte do espaco do habitacao , a traves de uma ponte.” published in Portuguese in “Arquitetura e Construção”, in Vilanova Artigas. *Caminhos da Arquitetura*. São Paulo, Fundação Vilanova Artigas; São Paulo: Livraria Editora Ciências Humanas, 1981. p. 72. Further information on Vilanova Artigas work can be found in Andreoli, Elisabetta and Adrian Forty. *Brazil Modern Architecture*. London; New York: Phaidon, 2004; Artigas,Vilanova. *A Função Social do Arquiteto*. São Paulo, SP: Nobel/Fundação Vilanova Artigas, and Puntoni, Alvaro, Ciro Pirondi, Giancarlo Latorraca and Rosa Camargo Artigas. *Vilanova Artigas*. Sao Paulo: Instituto Lina Bo e P.M. Bardi Fundacao Vilanova Artigas, 1997.
- 15) Spiro, Annette. *Paulo Mendes da Rocha: Bauten und Projekte/Works and Projects* Sulgen: Niggli, 2002. pp. 27 – 29.
- 16) *Ibid.*, p.253.
- 17) Artigas, Rosa. *Paulo Mendes da Rocha: Projects 1957-2007*. New York: Rizzoli, 2007. p.17.
- 18) *Ibid.*
- (19) Laura Bossi “Poesia Concreta/Concrete Poetry”, *Domus* 892, May 2006. p.79.