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Breathing Surfaces

Brazilian Façades of the 1930s and 1940s

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Modern Brazilian architecture offered a fertile territory for experimenting with the most varied forms of mediation between exterior and interior, such as brises, *shutters, wooden trusses, hollow elements and wide eaves. The application of these elements to the façades of high-rise buildings raised questions about the very nature of the facade in the modern era. In addition to the practical role, defining and offering basic conditions for carrying out the activities for which the buildings are intended, and to the operative role, reducing the internal temperature, the facades also perform a symbolic role, giving a face to the institution or the function that is developed there. This article seeks to develop this argument, through a closer look at two buildings of the Escola Carioca, the headquarters of the Brazilian Press Association (ABI) (1936–1938), by MM Roberto, and Parque Guinle (1948–1954) by Lucio Costa. It shows that these façades not only delimit the uses and made them possible, but also help the building to engage with the surrounding milieu through elements of climatic adaptation while representing the uses which took place there.*

In the various publications on modern Brazilian architecture in international magazines, between the mid-1940s and the early 1960s, buildings designed by architects of the so-called Escola Carioca played a significant role. In general, the publications highlighted their plasticity, elegant forms, and lightness, as well as the success achieved by integrating the arts and the attention paid to elements of climate protection.

This interest in modern Brazilian architecture was due to the fact that it pointed out paths for some concerns of international criticism in the middle of the 20th century, particularly regarding the supposed inability of modern architectural functionalism to deal with cultural and climatic aspects of the different regions, as well as themes such as monumentality. If in the 1920s, modern architecture seemed to be a universal project, the result of reason and technology ready to be implemented in the most distant corners of the world, it soon expanded to regions that were not yet industrial, nor fully urban, and that had very different climatic conditions and cultural traits from those of the few European countries where it was born. Modern architecture had to deal with diversity of both places and cultures. Its supposedly universal aspects had to converse with historical inheritances, traditional materials and building practices and classic continuities.[1] In this process, it assumed individual expressions and developed a series of peculiarities influenced by the conditions of the different places.

This diversity of expressions in modern architecture was also the result of the efforts of architects to adapt their creations to the different climates of the places where they built. The works of Richard Neutra (1892–1970) in California and Puerto Rico, Lucio Costa (1902–1998) in Brazil, Hassan Fathy (1900–1989) in Egypt, Maxwell Fry (1899–1987) & Jane Drew (1911–1996) in Ghana and Nigeria and Josep Lluis Sert (1902–1983) in different countries (United States, Spain and Iraq) showed that modern architecture was able to find more suitable ways of relating to the environment, through devices of climatic adaptation, which almost always found their roots in the building traditions of each region. The spread of air conditioning from the mid-1970s, in addition to the poor maintenance and lack of conservation, shadowed the richness of these experiments, but in the last years, with calls for a more sustainable architecture, there is a renewed interest in these architectural achievements, particularly for their techniques of environmental control.

Modern Brazilian architects were not the first to be concerned with such aspects. Observing the solar orientation and wind regime, preventing excessive heat or cold and making better use of available materials and resources have been present for millennia, particularly in traditional societies. However, with the rise of modern architecture in the early twentieth century, the ways of understanding the relationship between building and the climate have undergone significant transformation, through scientific knowledge and the new materials available.

1 William Curtis, *Modern Architecture since 1900,* 3rd ed., (London: Phaidon, 1996), David Leatherbarrow, *Architecture Oriented Otherwise,* (New York: Princeton Architectural Press, 2009); Roberto Segre, "Corrientes cruzadas: arquitectura moderna en América Latina y el Caribe". *IAT online*, febrero 2011. According to Roberto Segre: "Criticizing the protagonists of the Modern Movement of making an architecture alien to climatic problems and lacking a relationship with the urban or rural context are unfair. It is almost a stereotype, to consider the 'International Style' as a unified and coherent block, when the codes of European rationalism were applied in different ways by architects operating in multiple and contrasting regions of the world." (Segre, 2007 p. 7).

Brazil offered a fertile territory for experimenting with the most varied mediation techniques between exterior and interior. To deal with a climate marked by strong sunlight, which brings heat and light in excess, Brazilian architects were attentive to adapting to the climate, using *brises-soleil*, shutters, wooden trusses, hollow elements and wide eaves and balconies. These experiences were remarked upon by the exhibition *Brazil Builds* (1943), by the many international reports in architectural magazines that followed it and by the main pioneering accounts of Brazilian modern architecture, such as Henrique Mindlin and Yves Bruand.

These challenges were even greater when they had to deal with the facades of high-rise buildings. The large-scale application of *brises-soleil*, particularly at the headquarters of the Brazilian Press Association (ABI) (1936–1938) and at the Ministry of Education and Public Health (MESP) (1936–1943), contributed to putting evidence of Brazilian architecture on the international scene. These two buildings were featured in the many publications dedicated to Brazilian architecture, which always included sketches and drawings of the elements of sun protection.[2]

One of the first articles on modern Brazilian architecture, in 1940, already highlighted ABI's *brise-soleil* as an ingenious solution to solve the problem of the tropics and, interestingly, also stated that the *brise-soleil*

2 Both ABI and MESP were included in the famous 1943 *Brazil Builds* exhibition and were widely reported in the magazines: "Brazilian architecture: living and building below the equator" *New Pencil Points,* (Jan, 1943): 59, 60, 62; "Modern Buildings/Offices", *Architectural Review*, n. 567, v. 95 (Mar, 1944): 69–71, 75–77; "Le Ministère de L'Education et de Santé Publique à Rio de Janeiro" and "Building ABI," *L'Architecture D'Aujourd'hui*. Brésil, n. 13–14 (Sept, 1947): 13–19, 60–61. MESP was presented in detail at: "Office Building for Ministry of Education and Health. Rio de Janeiro, Brazil," *Architectural Forum*, (Feb,1943): 37–44. In turn, ABI's headquarters appears in: "ABI: from new techniques spring new forms," *Architectural Record* n.88, (Dec. 1940): 74–79; "ABI Building," *The Architectural Record* (Jan. 1943), 49.

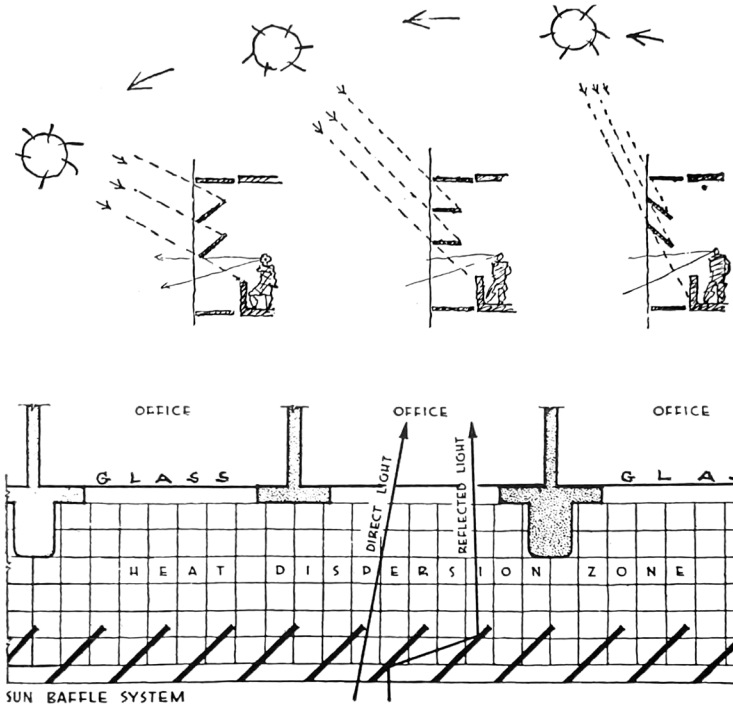


fig.1 Sketches of the operation of the brise-soleil system of the Ministry of Education and Public Health. Source: Kidder Smith, G.E. "The Architects and the Modern Scene," *Architectural Review,* n. 567, (Mar. 1944): 78.

fig.2 Detail of the floor plan of the Brazilian Press Association (ABI). Source: "ABI Building," Architectural Record, (Jan 1943): 49.

membrane gave "its shape and ornament to the exterior."[3] This seemingly unpretentious observation deserves attention because it reminds us that a facade not only defines what is inside and outside but must establish a relationship between the exterior and interior of the building and represent what occurs within it.

We can say that the facades of these Rio de Janeiro buildings perform three roles simultaneously: 1) a practical role, as it delimits the space and offers basic conditions for carrying out the activities for which the buildings are intended; 2) an operative role, as it modulates light and reduces the internal temperature; and 3) a symbolic role, since it provides an appearance to the institution or the function that is carried out there.[4] To achieve these functions, Brazilian architects understood the façade as an expanded and widened transition between the interior and exterior by the use of protective elements, such as *brises*, lattices, hollows ceramic pieces, venetian blinds, verandas and other elements which acted as filters but also provide depth to the membrane of the facade.

In this article, I seek to develop this argument, through a closer look at the facades of two buildings, the headquarters of the Brazilian Press Association (ABI) (1936–1938), by MM Roberto, and Parque Guinle (1948–1954), by Lucio Costa, two milestones of the school.[5],[6] Both are located in the city of Rio de Janeiro, which has a hot and humid tropical climate with high temperatures combined with high relative humidity during most of the year, with more intense rains in the summer and dry periods in the winter. They are examples of the intense process of verticalization since the 1930s, with office buildings in the centre and residential ones spreading along its south zone. They were also chosen to illustrate the maturity reached by Brazilian architects regarding these issues in just a few years. The ABI was the first large scale building with these devices, its inauguration preceding the MESP. The Parque Guinle was probably the most refined version of these experiences, along with examples by the Roberto Brothers, such as the buildings Instituto de Resseguros do Brasil (1942) and Seguradoras (1949–1952).

All these buildings are representatives of the so-called Carioca School. The many accounts on modern Brazilian architecture published between the mid-1940s and mid-1960s often emphasized that elements of the modern language, such as *brise-soleil*, the *pilotis*, and the free plan, were treated with lightness, plasticity, and elegance. They also noted the search for elements of climate adaptation from colonial architecture and the rich integration of the arts.[7] After an in-depth look at the redefinition of the facade in the modern era, some considerations are made on the way in which the architects from Rio de Janeiro, particularly Lucio Costa, used traditional features to face this challenge, which are followed by closer look at two facades.

3 "ABI: from new techniques," 75.

4 This argument can be partly debited from the analysis that David Leatherbarrow conducts of the church of the Church of San Martin de Porres in Puerto Rico, designed by Henry Klumb, which has its side facades composed entirely of sunshades that allow ventilation and views of the garden (Leatherbarrow, *Architecture Oriented Otherwise*, 2009, p. 23) and in the argument made in the first chapter of *Surface Architecture*, co-authored with Mohsen Mostafavi (Cambridge: The MIT Press 2002). In this article, the term "role" was adopted instead of the term "function" used by Leatherbarrow, because of the particular connotations of the latter in the context of modern architecture.

5 The Roberto brothers — Marcelo (1908–1964), Milton (1914–1953), and Maurício (1921–1966) — established their office (MM Roberto, later MMM Roberto) in the 1930s and were among the pioneers of modern architecture in Brazil. In addition to the Brazilian Press Association Building (ABI), their most notable works include the Santos Dumont Airport (1944), the IRB Building (Brazilian Reinsurance Institute) (1942), the Seguradoras Building (1952) and Marques do Herval (1956). Their work helped establish Brazilian modernist architecture on the international stage, particularly through their innovative solutions for climate control and their interpretation of modernist principles in a tropical context. For an overview of their works and career see: Luiz Felipe Souza, *Irmãos Roberto Arquitetos*, (Rio de Janeiro: RioBooks, 2014); Claudio Calovi Pereira, *Os Irmãos Roberto na arquitetura do Rio de Janeiro, 1936-1954*, master's dissertation (Porto Alegre: PROPAR/UFRGS, 1993); Yves Bruand, *Arquitetura Contemporânea no Brasil* (São Paulo: Perspectiva, 1981): 93–102; Fabiana Izaga, "Os edifícios de escritórios dos irmãos MMM Roberto no Centro do Rio de Janeiro: ou toda arquitetura leva a um urbanismo," *Revista Docomomo Brasil*, n. 5, (fev. 2022): 21–23; Daniel Barber, *Modern Architecture and Climate: Design before Air Conditioning*. (New York: Princeton Architectural Press, 2023): 77–97.

6 Born in 1902 in Toulon, Costa graduated as an architect from the National School of Beaux-Arts in 1922, a school that was dominated by neocolonial architecture at that time. In the mid-1920s, Costa became actively involved in efforts to document traditional architecture, travelling to historic cities in Southeast Brazil. His initial projects in the latter part of the 1920s clearly reflect neocolonial architecture, but he emphasized qualities such as simplicity and ▸

austerity while avoiding excessive decoration. In 1930, Costa shifted his focus toward modern architecture, likely influenced by Gregori Warchavchik, a Ukrainian immigrant known for designing Brazil's first modern houses, who became his partner in their architectural office in Rio de Janeiro. Their early 1930s projects, such as the Gamboa Worker's House and the Schwarcz House, showcased the abstract vocabulary of functionalist architecture. During this decade, Costa also contributed to two landmark projects in Brazilian architecture: the Ministry of Education and Health Building (1937–1943) and the Brazilian Pavilion at the New York World's Fair (1939). Costa played a crucial role in solidifying Brazil's built heritage preservation system working at the National Institute of Heritage (SPHAN). He won the design competition for Brasília in 1957. For an overview of his work, see: Lucio Costa, *Registro de uma vivência*. (São Paulo: Empresa das Artes, 1995); Ana Luíza Nobre, João Masao Kamita, Otávio Leonídio, Roberto Conduru, eds. *Lucio Costa: Um modo de ser moderno,* (São Paulo: Cosac & Naify, 2004); Otávio Leonídio, *Carradas de Razões: Lucio Costa e a arquitetura moderna brasileira*. (Rio de Janeiro/São Paulo: PUC-Rio/Loyola, 2007).

7 The exhibition "Brazil Builds," which took place in the Museum of Modern Art in New York in 1943, displayed this new architecture to the world. This exhibition addressed both the interests of the Vargas regime, in its search for an artistic representation and for instruments of propaganda, and the interests of the American government in its diplomatic effort towards Latin America during the World War II. The term Carioca School came to designate the works of these architects based in Rio de Janeiro, but whose influence reached many parts of Brazil from the mid-1940s.

8 Colin Rowe, "Chicago Frame." In *The Mathematics of the ideal villa and other essays*. (Cambridge: The MIT Press, 1976): 98–99.

9 These studies sought to develop methods and tools so that architects could better understand the climatic aspects and, thus, design more appropriately, such as the Form and Climate Research Group of the Columbia University School of Architecture (BARBER, 2016) and Architecture Princeton University Laboratory, led by Victor Olgyay, author of *Design with Climate: an Approach to Architectural Regionalism* (1963), a key reference in the field.

More Porous, Thin, and Transparent Facades

These buildings from Rio de Janeiro bring us to an older problem of the architectural discipline in the modern era, which was the very idea of the dissolution of the facade. The modern continuous space made the walls more porous, thin, and transparent — reduced to almost nothing — but never reduced to anything. Today, this transformation in the way of thinking and defining a facade seems to be simply a logical consequence of modernity, but it was one of the great dilemmas that affected the architectural discipline, as it challenged the architectural conventions in vogue at the turn of the nineteenth to the twentieth century.

This challenge can be seen in the first North American skyscrapers, which transformed the usual relationship between solids and voids, structure and cladding, affecting the very way of thinking about architecture. As Colin Rowe showed, the steel structure made it possible to increase the glass surfaces and decrease the supports, thus freeing the facades from expressing the building loads and the traditional anthropomorphic analogies, which for centuries have been associated with facade design.[8] With the real possibility of constructing these buildings, architects faced several questions. To what extent would new technologies determine the facade? Should this represent aesthetic intentions, or should they be left free, as the expression of a new constructive technology? By adopting this second option, would it be possible to produce an image appropriate to the function carried out in the building? How to arrange elements of sun protection in an coordinated way with this desired image and with its structural and constructive elements? In short, how to arrange a facade that can delimit, mediate well with the surrounding environment and create a remarkable image for the building?

Since Gottfried Semper, these questions have concerned some architects and thinkers. If many of those skyscrapers in late nineteenth-century Chicago had their audacious structures lined with classic ornamental elements, other architects at the turn of the century sought an expression more coherent with the new era, such as Otto Wagner. Along with his disciples Max Fabiani and Jože Plečnik, he had been looking for simplification and a new type of ornamentation, reducing the facade to a single surface, strongly emphasizing its planar condition, as in one of his last works, the Neustiftgasse 40 building.

Brazil would make a fundamental contribution to this debate. The concern with adapting the building to the climate of the place where it would be built was a constant among modern local architects, even before more in-depth and scientifically based studies were developed, such as those produced by post-World War II environmental comfort laboratories.[9] The architects from the Carioca School managed to build the first facades entirely with *brises-soleil*, an incessant pursuit that Le Corbusier had launched since the late 1920s. The French-Swiss architect places himself as the creator of *brise-soleil*, pointing to the year 1928, the year in which he

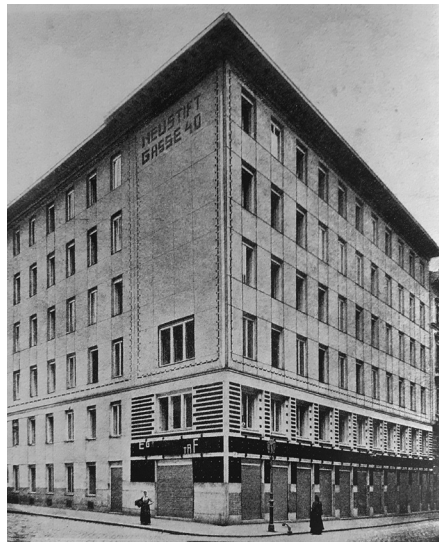
fig.3 Jože Plečnik, Villa Langer, Vienna, 1901–1902.
Photo: Author, 2010

fig.4 Max Fabiani, Artaria Haus Vienna, 1900.
Photo: Author, 2010.

fig.5 Otto Wagner, Neustiftgasse 40 Building, Vienna 1909–1910. Source: Heinz Geretsegger, Max Peintner, Otto Wagner, 1841–1918 (New York Rizzoli, 1979): 128.

fig.6 [next page]
Le Corbusier and Pierre Jeanneret, *Immeuble Clarté,* Genebra, 1930–1932 Source: Willy Boesiger, Le Corbusier et Pierre Jeanneret, Ouevre Complete de 1929–1934. 6 ed. (Zurich: Les Éditions Girsberger, 1935): 66.

fig.7 [next page]
Le Corbusier and Pierre Jeanneret, *Maison Locatif,* Argel, 1933. Source: Boesiger, Le Corbusier et Pierre Jeanneret, 171.



came across a remote project for a residence in Tunisia, Villa Baizeau.[10] Warned by the owner to have large balconies on the periphery of the volume, Le Corbusier imposed large incisions and recesses under the slabs and pillars in an original cubic volume, causing the walls to be quite recessed.[11] Despite the innovation and the central role that this house would have in its elaboration of its ideal of a modern home, there is still no *brise-soleil* element as such.

Until then, in his belief in technology, Le Corbusier sought to solve the problem of climate adaptation through mechanical elements. At the Cité du Refuge (1929–1933), in Paris, and at the Centrosoyuz (1928–1936), in Moscow, he proposed hermetically sealed facades composed of double sheets of glass, the *mur neutralisant*, in which hot or cold air would circulate in the space between the two blades, heating or cooling the environments. However, both failed due to technical and financial difficulties and the interiors became very hot in summer and very cold in winter.[12]

Shortly thereafter, at the Immeuble Clarté (1930–1932), an apartment building in Geneva, Le Corbusier abandoned sophisticated mechanical elements and used low-cost sun protection devices — balconies, retractable awnings and interior blinds — that modulate the incidence of the sun according to the user's wishes, thus generating dynamism on the facade. As part of a larger urban plan for Barcelona in 1931, he designed a block containing apartments with *pilotis* and two floors, with operable louvres in their façade.[13] Only in 1933 did he design the Maison Locatif in Algiers, a tall building with two of its facades entirely composed of hollow elements.[14]

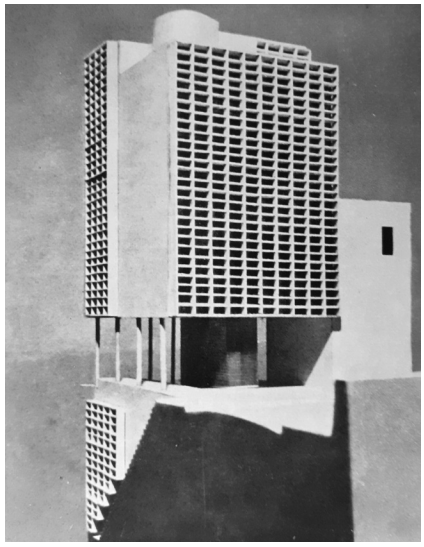
10 A page inserted in a special issue dedicated to Brazil in the *l'Architecture D'Aujourd'hui*, shows works by Le Corbusier indicating the advances in this direction: the Villa Baizeau (1928) (*pilotis*, *parasols*, *auvents*) Allotment Project in Barcelona (1933) (jalousies, loggias), *Maison Locative* (1933) and the *Cité des Affaires* in Algiers (1938–1942) (loggias, *brises-soleil*) and, finally, the Unité de Marseille (1945–1947) (loggias, *brise- soleil*). Le Corbusier. Petit historique du *brise-soleil* extrait de l'ouvre. in *L'Architecture D'Aujourd'hui* No. 13–14, (Sept., 1947): 10.

11 Harris Sobin, "Veils and Shadows: Le Corbusier in North Africa, 1928–1936", *Proceedings of the Meeting of the French Colonial Historical Society* Vol. 19 (1994): pp. 188–189.

12 Brian Brace Taylor, *Le Corbusier, The City of Refuge, Paris 1929/1933,* (Chicago: The University of Chicago Press, 1987): 111–115; Daniel Barber, "Le Corbusier, the Brise-Soleil, and the Socio-climatic Project," *Thresholds* 40 (2012): pp. 24–25.

13 Barber, *Modern Architecture and Climate,* 1–5.

14 Willy Boesiger, *Le Corbusier et Pierre Jeanneret, Ouevre Complete de 1929–1934.* (Zurich: Les Éditions Girsberger, 1935): 170–173.



This departure from indisputable faith in mechanical technology is associated with a major change in Le Corbusier's work, when abandoning values linked to lightness, mathematics, machine precision, and the classical, his projects, from the 1930s onwards, began to use brick in vaults or exposed on walls and floors, natural stone cladding, ceramic floors and wooden frames, such as Casa Errazuris (Chile, 1930), Maison Mandrot (Le Pradet, 1932) and Petite Maison de Weekend (Celle St Cloud, 1935).

This change in his work coincided with his trips to South America in 1929 and to North Africa, in the beginning and middle of 1931. Experiences with different landscapes, cultures and climates may have accelerated this detachment from the mechanistic ideal, along with the adoption of a topographic and regionalist sensitivity and a renewed interest in territory and nature.[15] If his work until the late 1920s was marked by his obsession with flooding his spaces with light, when dealing with other geographies, he discovers that shadows also produce spaces and *brises* are constantly used as at Maison Currutchet (La Plata, 1949), at Unité and reach their peak in his works in India.

The tradition of dealing with the environment

To deal with the strong sunlight bringing heat and light in excess, architects from Rio de Janeiro prioritized elements that favoured the entry and exit of the winds, such as sunshades, shutters, hollow elements and wood lattices. In addition, they sought to avoid excessive heat in the most used rooms, through better orientation.

We can identify the origins of this concern of Brazilian modern architects in the attentive look that Lucio Costa directed to our colonial architecture in the early 1920s within the scope of the movement known as neocolonial, in which he was involved until the late 1920s when he aligned with modern tendencies. He received diatribes from his former mentor José Marianno Filho (1881–1946), complaining that his reform in teaching at the Escola de Belas Artes would be displacing the vocabulary of neocolonial architecture and, thus, disrespecting the country's traditions.[16] By way of response, Lucio Costa explained that he admired colonial architecture so much that he understood its spirit, its logic, and its suitability to its time and place. In emphasizing the honesty and clarity of colonial constructions, he criticized the decorative emphasis of the neocolonial and stated that the principles of colonial architecture could be incorporated into modern architecture, resulting in an architecture more capable of responding to the challenges of the new era.[17] In "Reasons for the New Architecture," Costa provided a broader justification for his choice of modern architecture, highlighting the major achievements and transformations in terms of walling, façade, and structure.[18] Strongly attracted to the local building traditions, he claimed that the main principles of colonial architecture could be incorporated

15 William Curtis, *Le Corbusier: Ideas and Forms*, (London: Phaidon, 1986):109–116, 162–168. Kenneth Frampton, "Primitive Form and the Linear City" in *Le Corbusier, the Architect of the Century*. Michael Raeburn, Victoria Wilson, ed. (London: Arts Council of Britain, 1987): 29–30; Mary McLeod, "Le Corbusier in Algiers," in *The Oppositions Reader*, Michael Hays, ed. (New York: Princeton Architectural Press, 1998): 487.

16 In 1930, Costa was appointed by the new Vargas regime to the chairmanship of the National School of Beaux-Arts, with the mission of reforming the teaching system of the school. Inviting Warchavchik and other pioneers to teach, Costa introduced modern teaching methods of modern architecture, causing great discomfort among the old establishment. Costa's initial response came in a short article "A Beaux Arts School Alive' (1931), which he later expanded in an article entitled "Reasons for the New Architecture" (1936). Although these writings did not enable him to keep his position, as he left the school in the following year, they remained important statements of Brazilian modern architecture. Lucio Costa, "Uma Escola Viva de Belas Artes" (1931) and "Razões da Nova Arquitetura" (1936) in *Depoimento de uma Geração*. Alberto Xavier, ed. (São Paulo: PINI, 1987): 47–51

17 Costa, "Uma Escola Viva," Costa, "Razões da Nova Arquitetura."

18 Costa, "Razões da Nova Arquitetura," 33–34.

into modern architecture, thus enabling it to better respond to the challenge of the new age.[19]

Over the following decades, Costa undertook a series of studies on our colonial architecture, in which he sought to emphasize the continuity between colonial and modern. In these studies, he was not looking for exceptional monuments (like baroque churches), but for anonymous, simple and functional buildings, which demonstrated honesty of construction, old patterns of living and appropriateness to their time and place: "Bahia and Recife, and the old cities of Minas Gerais, made me understand the real architecture... A contemporary architecture, according to our materials and conditions, habits and culture. Nothing more, only this."[20]

In the modest traditional buildings of colonial times, one can observe, according to Costa, the essential qualities of Brazilian architecture, which resulted from the gradual adaptation of Portuguese models to the social conditions and constraints of the environment. It was possible to see these as rude, simple, and "plastic" constructions in the rural areas of both Portugal and Brazil.[21] Evoking Loos' emphasis on straightforwardness, Costa frequently expressed that unpretentiousness was a necessary quality of good architecture: "Arriving there, I felt into the past in its simplicity, purity, a real past. That was new for me. It was a revelation."[22]

19 Fernando Diniz Moreira, "Lucio Costa: Tradition in the Architecture of Modern Brazil," *National Identities*. 8(3) (2006): 265.
20 Costa, "Uma Escola Viva," 47.
21 Costa, *Registro de uma vivência,* 71.
22 Costa, *Registro de uma vivência,* 27.

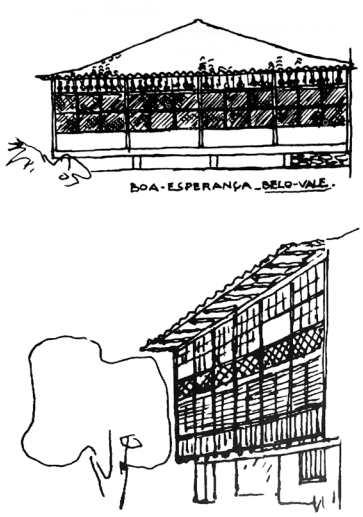


fig.8 Lucio Costa, Sketches of traditional houses, São Luís. Source: *Registro de uma vivência* (São Paulo: Empresa das Artes, 1995): 500.

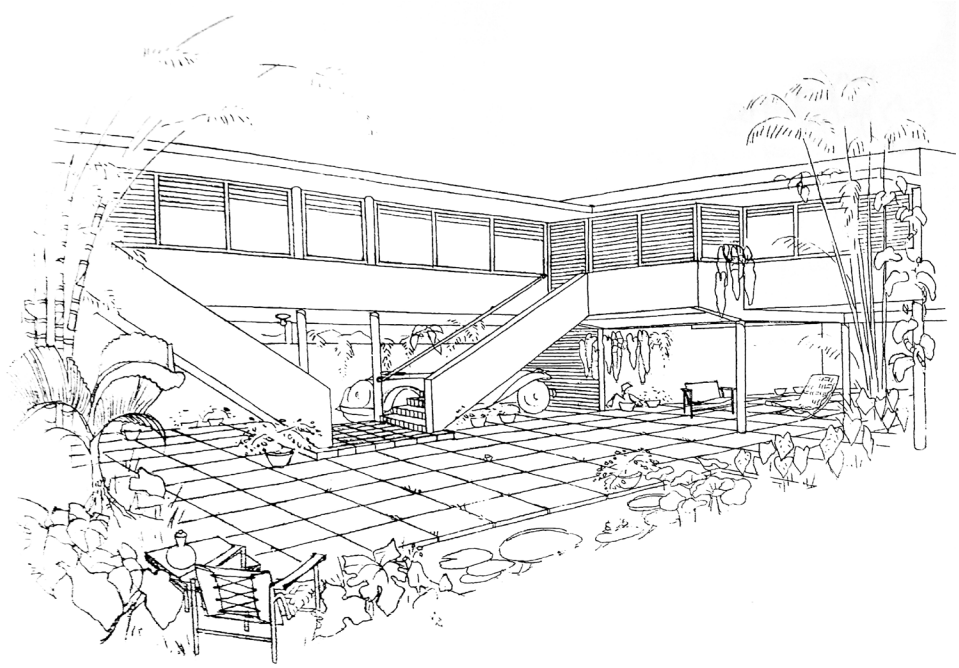


fig.9 Lucio Costa, Ownerless houses, 1932–1936. Source: *Registro de uma vivência,* 89.

His understanding of tradition was not only based on materials and forms, but on sensorial experiences, patterns of dwelling, and ways of dealing with the environment.[23] According to Costa, one needs to restore the architectural essence, which can be found in common buildings, those where people live the prosaic lives, and not in extraordinary examples.[24]

According to him, the colonial house offered centuries of experience from which modern architects should learn.[25] His drawings and sketches of the colonial house described building techniques, plans, windows, and elements of solar protection. Driven by his modern approach, Costa focused on qualities shared between modern and colonial architecture, such as the inner functionality and the lack of ornamentation.

These studies also played a key role in his architecture. After abandoning the neocolonial aesthetics and carrying out some projects with the abstract vocabulary of modern architecture, together with Ukrainian immigrant Gregori Warchavchik (1896–1972), Costa designed the "ownerless houses" between 1932 and 1933, attesting that his understanding of tradition was not based only on materials and forms, but on sensory experiences, in the cultural practices of living. The drawings of the "ownerless houses" contain principles that are the basis of the houses he designed in the following decades. In this return to the origins, it was also necessary to study the elements of the colonial house, particularly the elements of sun protection.

ABI: Institutional, Classical and Urban Values

These same climate-related principles could also be used for more complex projects such as high-rise buildings. The architects of the Rio school made a fundamental contribution in this regard, starting with the headquarters building of the Brazilian Press Association (ABI). Representing the professional body of journalists, probably the most influential group at this moment in Brazilian politics, the building acquired an institutional character. It was the result of a competition promoted by Herbert Moses, president of the institution between 1932 and 1940, who was fully engaged with the realization of the new headquarters, and won by brothers Marcelo and Milton Roberto, from the MM Roberto office.[26] It consists of offices and presents a free plan, independent structure, garden roof and *pilotis*. The pillars were set back from the facade and wooden frames from floor to ceiling were placed between them, creating an external loggia about 1.5 m deep, which acts a space of transition between offices and the exterior.

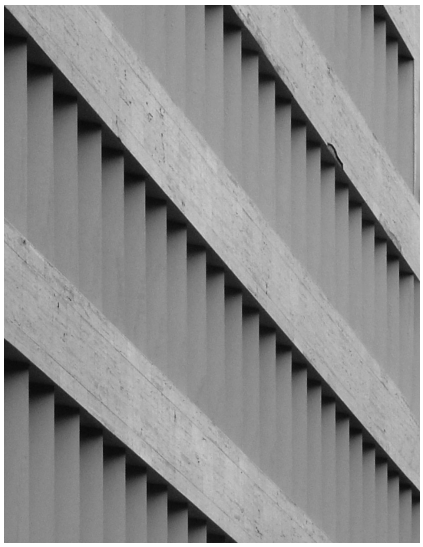
Located at the corner of Araújo Porto Alegre and México Streets at the centre of Rio, the plan has a L-shaped format since with an internal courtyard. Their two free facades did not enjoy a favourable orientation. Thus, to avoid excessive sunlight, the architects implemented a solar protection system on both facades composed of fixed vertical blades arranged obliquely from floor to ceiling. Initially planned to be made

23 Moreira, "Lucio Costa: Tradition," 266–267.
24 Lucio Costa, "Uma documentação necessária" (1937), In *Arquitetura Civil II: textos escolhidos da Revista do* IPHAN, (São Paulo: MEC/IPHAN/FAUUSP, 1975): 93–97
25 Costa, "Uma documentação necessária," 93.
26 Bruand, *Arquitetura Contemporânea*, 93–94; Pereira, *Os Irmãos Roberto*.

fig.10–11 MM Roberto, ABI headquarters, Rio de Janeiro, 1936–1938. Photo: © Gonzalo Renato Núñez Melgar, 2017.

fig.12–14 MM Roberto, ABI headquarters, Rio de Janeiro, 1936–1938. Photo: Author, 2005.

fig.15 MM Roberto, ABI headquarters, Rio de Janeiro, 1936–1938. Photo: © Gonzalo Renato Núñez Melgar, 2017.



of aluminium, the blades were made in concrete for financial reasons. In 1940, an American magazine emphasized the sunshades as an ingenious solution to solve the problem of sun striking the facades of the tropics.[27]

The ABI's headquarters was the first tall building to contain an entire facade composed of *brise-soleil*, a feat only idealized but not yet achieved by Le Corbusier, as seen previously. The competition was launched in January 1936 and the result came out in June of the same year, even before Le Corbusier's second visit to Brazil, between July and August 1936, when he had a closer contact with Brazilian architects and participated in the design of the MESP headquarters.

The building has a ground floor, a mezzanine floor and another 11 floors, with a tripartite division. The base (ground floor and mezzanine) consisting of stores set back from the facade, except for the lobby which, surprisingly, opens completely to the street giving access to the elevators and the inner courtyard, in one of the greatest urbanity lessons of modern architecture. The entire lobby is fully open to the sidewalk, to the pedestrian movements in the streets and circumstances of the city.

The main body of the building itself comprises nine floors, containing end-to-end lines of sunshades, with the exception of the eighth floor. Finally, the crowning consists of more two floors, not visible from the street level, set back to obey urban requirements, but the composition proves to be more complex, since as the eighth floor of the main body does not contain sunshades, it ends up reinforcing with the ninth floor, the crowning in fact of the building.

A closer look identifies the different textures of the travertine marble used as a cladding for the beams that appear on the facades, while the *brises* are made of concrete pieces. If marble suggest permanence and nobility of an institution, the lines of *brises*, which do not allow us to fix our gaze on a central focus on the facade, refer to a dynamic and modern image that the institution sought to allude to. In turn, the colossal order and the large glass bricks panel at the centre of the Mexico Street facade, reaffirm the symmetry and classic values of the building.

This play between continuity and discontinuity, classic tradition and modernity, is maintained in the urban insertion. The occupation of this area followed the guidelines of the Agache Plan (1930), which determined blocks of quadrangular shape with buildings of the same height occupying the limit of the lot with the street, leaving internal patios. The recessed base and fenestration brought by the *brises* are different from those of the context, but the facade tripartition, the colonnade on the ground floor and the recessed floors at the top provide continuity and reestablish the relationship with the neighbours. ABI does not compete with the context, but, on the contrary, with its relative muteness of horizontal lines it creates a suitable backdrop to enhance the eclectic elements of the National Library across the street, which has a similar volume, as noted by Comas.[28]

27 "ABI: from new techniques," 75.

28 Carlos Eduardo Comas, "Rio, Pernambuco, Rio Grande e Minas: contextualismo e heteromorfismo," in *Arquitetura moderna no Nortes e Nordeste do Brasil: universalidade e diversidade*, ed. Fernando Diniz Moreira (Recife: CECI/UNICAP, 2007): 37.

Although the sunshades perform a crucial role in blocking solar radiation, especially on the west façade, as shown by the measurements and simulations made by Regina Correa and Roni Anzolch, their arrangement was not very efficient since a single type with the same inclination does not perfectly meet the needs for solar protection.[29] In addition, there are disadvantages of making the areas farther from the window less lit and of preventing full vision to the outside. Additionally, there are drawbacks to having areas farther from the window that receive less natural light and limit the view outside. Air conditioning machines installed in the later decades restricted the full use of this space, which is not easily accessible. Although the system of *brises* in the façade was not fully successful in maintaining a comfortable temperature effectively the entire year, this façade should be understood as an experiment, a pioneering effort to employ *brise-soleil*. The Roberto brothers continue this research and, in the following years, offer sophisticated examples of plastic treatment and facade protection, such as the already mentioned Seguradoras and the Marquês do Herval.

Finding a balance between the proposed programme and the strict urban code, without giving up their intentions, was a great challenge for the Roberto Brothers, whose sensitivity and inventiveness helped them to conceive an architecture of high quality, which was continued with other more mature examples regarding the solar protection of facades, as already mentioned.

Parque Guinle: Domesticity and Nature

The opportunity for Lucio Costa to address the relationship between interior and exterior in tall building resolution came when a wealthy family commissioned him to design some apartment buildings in the Laranjeiras neighbourhood, also in Rio de Janeiro, in 1948, Parque Guinle. This initiative consisted of a group of six apartment buildings for the upper middle class to be built on the family's property, of which only three were built: Nova Cintra (1948), Bristol (1950) and Caledônia (1952).

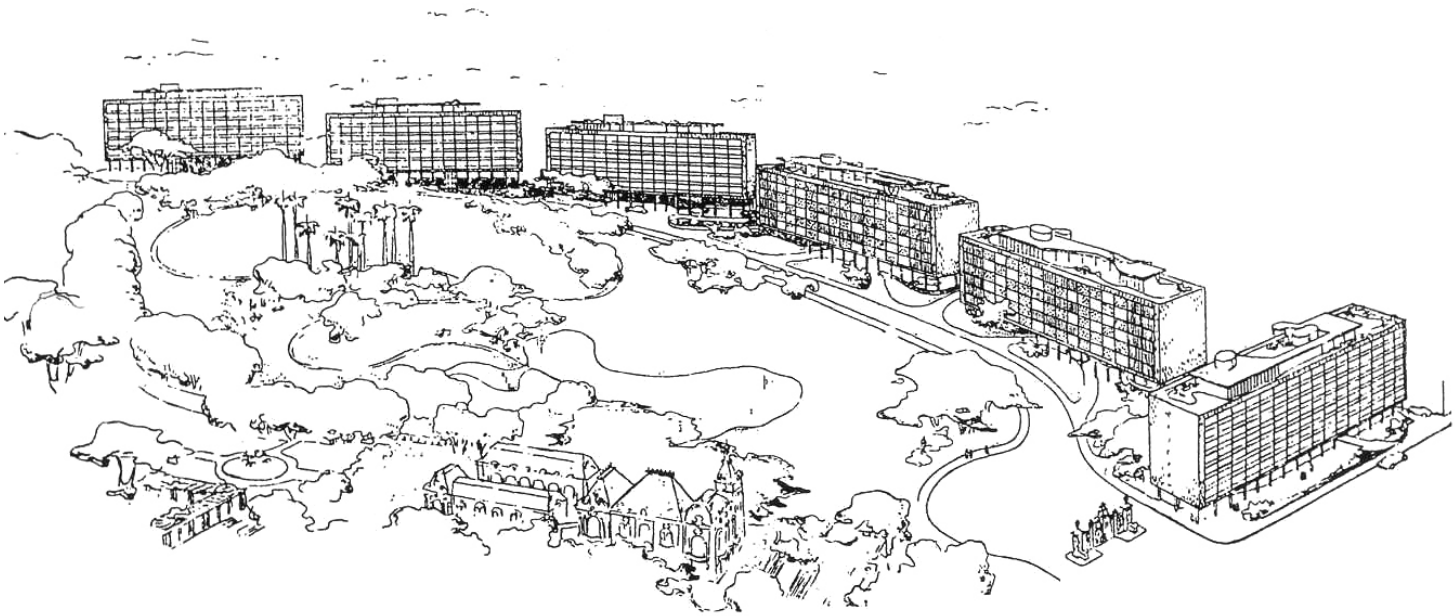
The site was an oval depression, quite difficult to build on. Costa kept this depression as a park, and placed prismatic blocks around it, forming a circle-like arrangement, and kept the family mansion on the highest ground, as the core of the composition.

The apartment buildings are parallelepipeds measuring 65 m long and 15 m wide, following modern principles: independent concrete structural skeleton, flat slab with cantilevered floor, underground garage, double height *pilotis* on the first floor, two cores of elevators, and two exterior stairwells.[30] Each building contains four apartments per floor arranged in parallel strips, but the two apartments at the centre of the floor are actually duplex apartments with two bedrooms each, while the two apartments at the corners are on a single floor, are bigger and with four bedrooms each.

29 Sílvia Morel Corrêa, Roni Anzolch. "ABI e MES: dois casos emblemáticos de fachadas com brise-soleil," *Asociación de Escuelas y Facultades Públicas de Arquitectura de América del Sur*, (Campinas, 2019): 6–8.

30 Carlos Eduardo Comas, "A racionalidade da meia lua. Apartamentos do Parque Guinle no Rio de Janeiro, Brasil, 1948–52," *Arquitextos*, 1, n.10.1 (2001).

fig.16 Lucio Costa, Parque Guinle, scheme, Rio de Janeiro, 1948–1954. Source: Costa, *Registro de uma Vivência,* 206–207.



In making the plans of the Nova Cintra, Lucio Costa also invoked old traditional patterns, particularly the two verandas in each apartment, one more social and the other with a domestic character:

> It was the essence of this traditional scheme that we tried to revive in the apartments in Parque Guinle: a kind of winter garden, adjacent to the living room and a room with no specific destination, connected to the bedrooms and the service; one more formal and the other more at ease, thus corresponding to the homemade veranda.[31]

The first built block, Nova Cintra, was located next to the access to the park, aligned with the existing urban pattern, acting as a transition point with the city. Its south façade facing the city is covered with glass, painted blue until the parapet while the north façade facing the park is covered with a myriad of protecting elements. The other two blocks, Bristol and Caledônia, were located roughly perpendicularly to the Nova Cintra and accommodated on the slope, being joined by a street that follows the curvature of the arrangement.

While the Nova Cintra has a favourable solar orientation, with the main spaces of permanence (living rooms and bedrooms) facing south, the location of the other two blocks was a challenge: to have the main spaces (living rooms and bedrooms) facing the park means they also have to face west, the merciless sunset. Costa sought to alleviate this situation by creating a sun protection system in the west facades facing the park and in the north façade of Nova Cintra. In the Caledônia and Bristol, verandas were added in all the rooms facing the park: they are only 70 cm on the living room and 1.20 m in the bedrooms. To counteract excessive sunlight, Costa created a membrane of sun protection elements, a unique combination of *brises-soleil*, venetian blinds and perforated ceramic elements, known as *cobogós*, which have two different sizes.[32] Most of these elements originated from Moorish architecture, which was revived by the Portuguese when they arrived in the tropics. The vertical *brise-soleil* planes, on the other hand, are made up of fibre cement painted yellow at the Nova Cintra, blue on the Bristol and pink on the Caledônia. The result is a sort of quilt, that covers the entire façade.

The plane of *cobogós* is occasionally perforated in the centre by an opening delimited by a slim concrete frame, creating the image of a prosaic window. If the façade protects the building from the sun and from of a passerby, this window provides direct views to the park. The square window in a *cobogó* panel became a formal motif widely repeated by other Brazilian architects during the 1950s and 1960s.

Completely dressed in different panels of different elements and textures, the interaction of transparent, translucent, permeable and

31 Costa, *Registro de uma Vivência*, 212.

32 The name *cobogó* came from the initials of surnames of the three engineers from the north-eastern state of Pernambuco, who patented this hollow precast element made of cement and sand in 1930: Coimbra, Boeckman and Góes. By the 1930s, advertisements showed that many companies were offering this piece, not only in concrete but also in ceramics, and with different designs, which became quite popular in Brazil since it made construction lighter and faster and allowed ventilation through the buildings.

fig.17–18 Lucio Costa, Parque Guinle (Caledônia), Rio de Janeiro, 1948–1954. Photos: Author, 2006.

fig.19 Lucio Costa, Parque Guinle (Bristol), Rio de Janeiro, 1948–1954. Photo: Author, 2006.

fig.20 Lucio Costa, Parque Guinle (Nova Cintra), Rio de Janeiro, 1948–1954. Photo: Author, 2006.

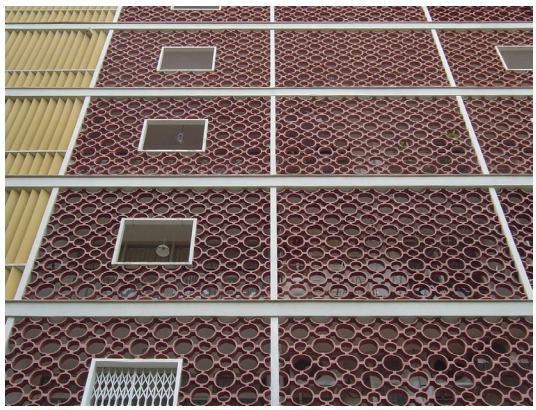


fig. 21 Lucio Costa, Parque Guinle (Bristol),
Rio de Janeiro, 1948–1954. Photos: Author, 2006.

fig. 22 Lucio Costa, Parque Guinle (Nova Bristol),
Rio de Janeiro, 1948–1954. Photos: Author, 2006.

opaque elements provided an air of immateriality to this membrane. Despite this diversity of traditional and new elements, the result is not confusing; on the contrary, it is a unified composition, whose variety defies monotony.

Since the pillars were receded from the façade, there are no clear clues about the distribution of rooms in the apartments, as is common in high-rise residential buildings. Even if there is correspondence between the types of closures and the types of spaces behind them—the *brise-soleils* corresponding to bedrooms and the *cobogós* corresponding to living rooms and offices—these features are not evident from the outside, as noticed by Eskinazi and Penter.[33]

As seen, the modern era made the facade lose its materiality, attenuating the difference between window and facade. Considering the facade as a large window, Costa proposed an innovative way of thinking about the architectural surface. In fact, this facade performs the basic roles of a window: it frames views of the surrounding landscape, illuminates the interior and allows the building to breathe.

This permeable surface, mediating between interior and exterior, works as a loggia, shading the facade, filtering light, and letting breezes flow. As shown by measurements made by Cunha and Bastos, these elements work particularly well.[34] With these devices, Costa created a spatiality in the facade itself, a space that belongs to the exterior and the interior, at the same time. In this way, it provided depth to the façade; however, seen from a distance this effect disappears, and the membrane seems to fade.[35]

This sort of transparency recalls Adrian Forty's discussion of the different interpretations of the term in modern architecture between "literal transparency," as heralded by modern masters as a fruit of technology and "phenomenological transparency," revealing the apparent space between volumes and the interpenetration between them, as presented by Colin Rowe and Robert Slutsky.[36] The Parque Guinle's façade instead of these two interpretations seems to allude to a third position, "transparency of meaning," as explained by the critic Susan Sontag in *Against Interpretation*: "Transparence is the highest, most liberating value in art — and in criticism — today. Transparence means experiencing the luminousness of the thing in itself, of things being what they are."[37] This interpretation is closely related to modern aesthetics while admitting a phenomenological meaning.

The facades are intended to be experienced from the outside, as well as from the inside. The intense light is attenuated, creating a notable effect on the interior. The exterior reveals the interior, allowing one to see people moving in the interior, as in traditional houses, when privacy was prioritized, and ventilation channels allowed. At the time when buildings were beginning to replace houses in Brazilian cities, these buildings represented a kind of experiment, an attempt to adapt the traditional house to a new way of living.

33 Mara Eskinazi, Pedro Penter, "A fachada como interface, de Lucio Costa a Irmãos Roberto: repertório de projeto," *19th Seminario Docomomo Brasil*, (Salvador, 2019): 9–10.

34 Victoria Cunha, Leopoldo Bastos, "Avaliação bioclimática do edifício moderno: o caso do Edifício Nova Cintra, Parque Guinle," *19th Seminario Docomomo Brasil*. (Salvador, 2019): 8–11.

35 Moreira, *Lucio Costa*, 270.

36 Adrian Forty, *Words and Buildings: A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000): 286–287.

37 Forty, *Words and Buildings,* 288.

Concluding Remarks

Despite the fact that there is a clear evolution in the treatment of the climatic devices, the facades of the ABI and the Parque Guinle were successful attempts to avoid what Josep Lluís Sert, some years later, called anonymous facades, referring to the skyscrapers of the 1950s.[38] Sert pointed to the need for a reassessment of the past and for a reinterpretation of traditional measures and figurative elements, in order to reconnect contemporary architectural practice with practical and symbolic human needs. Rejecting the fashion of the glass facade and turning to vernacular shapes and traditional devices, Roberto Brothers and Lucio Costa were anticipating these problems, mediating between modernity and tradition, rationality and convention.[39]

These facades are important chapters in the history of modern architecture, which has brought major changes to the facades, making them more porous, thin, transparent and open, as can be seen. The facades of high-rise buildings in Rio perform three functions simultaneously. First, they delimit and contribute to making the uses envisaged there feasible. One can work or live without external disturbances but perceives the outside when wanted. They help the building to engage with the surrounding environment, whether in the dense centre of Rio or in the park in Laranjeiras. Second, with their climatic protection devices, the facades achieve this mediation with an external environment, regulating the air intakes, allowing the entry of natural light, and attenuating the internal temperature. Finally, they represent the institution well, in the first case, and the living habits, in the second case.

The various elements of climate protection express the way buildings operate in relation to the climate, which can lead us to other ways of understanding the building, not only paying attention to its shape, but also to the way they work in their engagement with the environment, how they breathe and how they participate in their milieu. Demonstrating that technology/modernity and heritage/tradition can be reconciled, these facades successfully mediate between functional and economic requirements and aesthetic impulses, responding to the local culture and climate. The traditional shading elements used are not intended to give it a traditional look, but rather to express an old and continuous relationship with light and climate.

38 Josep Lluís Sert, "Windows and Walls: An Approach to Design" *Architectural Record* 131 (5) (1962): 132–133.

39 On these issues consult: David Leatherbarrow, Mostafavi, Mohsen. *Surface Architecture*. Cambridge: MIT Press, 2002. p. 9.