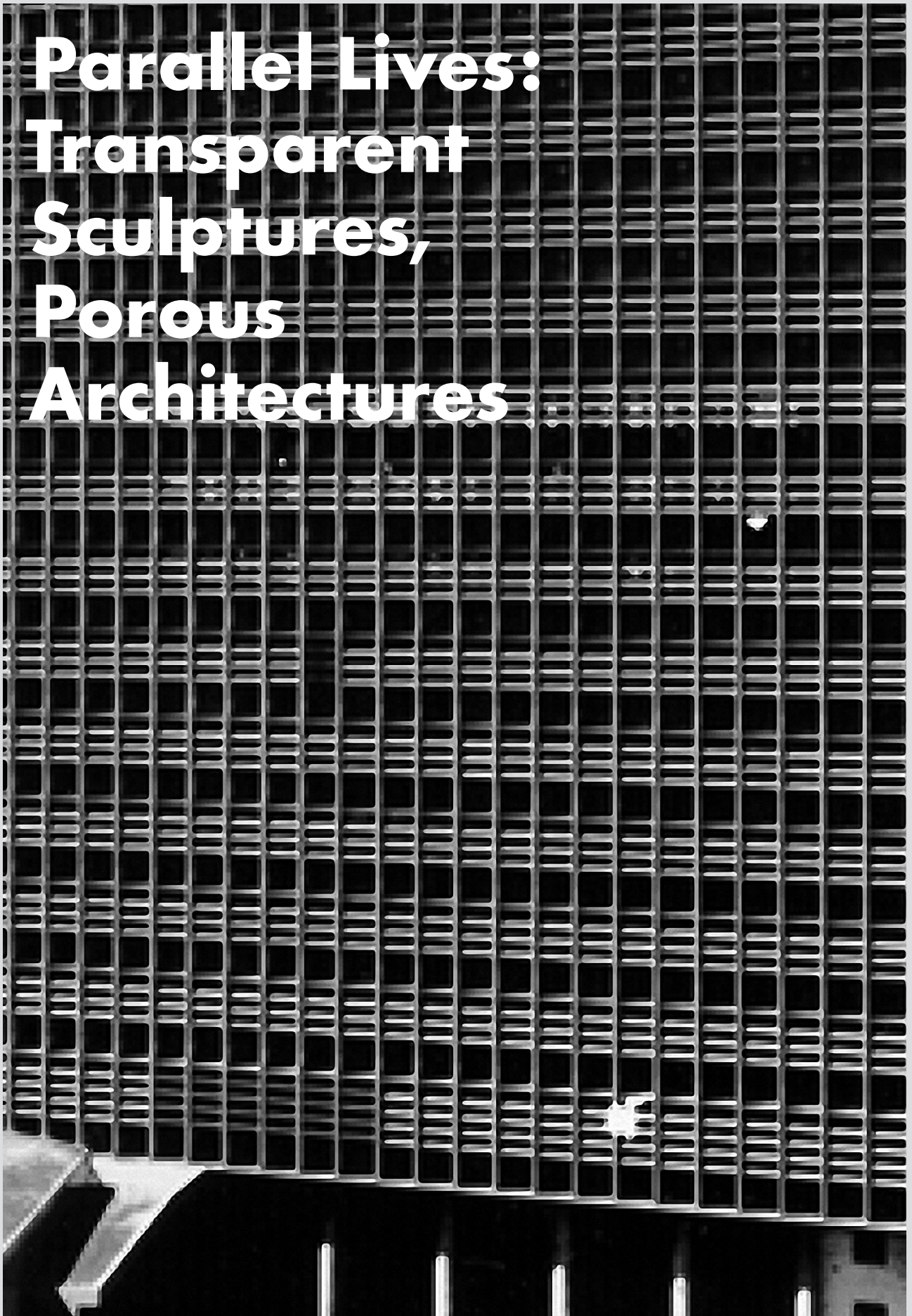


# Parallel Lives: Transparent Sculptures, Porous Architectures

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**The text registers and discusses the affinities between the transparency of a branch of modern sculpture and the characteristic porosity of Brazilian modern architecture, placed in the broader context of the exchange between architecture, painting, sculpture and construction in the twentieth century.**

By Carlos Eduardo Comas

**H**ENRY-Russell Hitchcock presents "abstract painting of the twentieth century which has influenced the development of modern architecture," second, "contemporary abstract painting and sculpture of potential value to contemporary architects" in *Painting Toward Architecture* (1948).<sup>1</sup> For Hitchcock, even the presumably imitative architectural forms like the Egyptian pyramid or the Greek column have a degree of geometric abstraction that distances them from nature, while abstract art is a twentieth century creation. Modern painters and sculptors reject copying natural forms just as modern architects reject the reuse of historic architectural motifs. Architecture and painting stimulate each other.

On the one hand, Hitchcock links abstraction with the recovery of architectural values in the pictorial composition of synthetic cubism and parallel movements. On the other hand, he shows the affinities of Oud, Rietveld and Mies with neoplasticism; associates Gropius and the Bauhaus to Kandinsky, Klee and Feininger; details the links between Le Corbusier the architect and the purist painter who wants to go beyond cubism. He recognizes that abstract art does not assist architects in their structural problems, but reiterates its importance as a plastic research. He concludes:

*The visual forms of a new architecture . . . were . . . implicit . . . in the work of various precursors before the abstract art began. But these forms remained generally invisible . . . unrealized and merely immanent, until the catalytic contact with the experiments of the advanced artists of a quarter century ago brought them to crystallization.*<sup>2</sup>

Hitchcock notes that the influence of painting on architecture decreases in the 1930s, while interest in figuration grows among artists, but he connects Arp's abstract surrealism to the free curves of Alvar Aalto and the Brazilian school, specially those of Oscar Niemeyer and Roberto Burle Marx. In the plans of Aalto and Niemeyer, the free flowing curve is a "melodic counterpoint to the regular rhythms of skeleton construction, has become a powerful vehicle of architectural expression."<sup>3</sup> Burle Marx's gardens seem to translate abstract biomorphism directly, like the eighteenth century English park reflects the classical

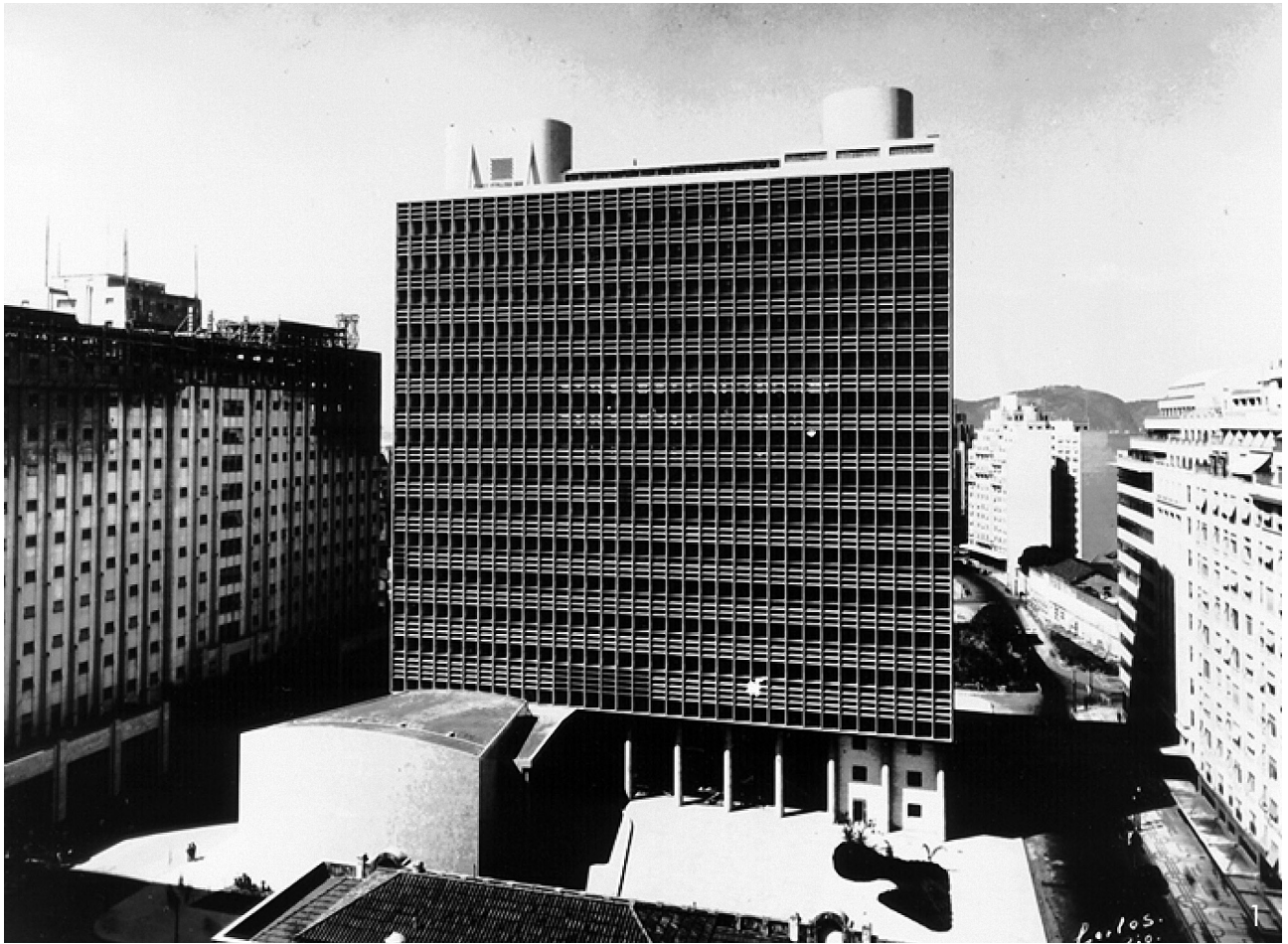
landscapes of Nicolas Poussin and Claude Lorrain.

Hitchcock distinguishes the suggestions of basic form that modern architects received from painting and sculpture from the collaboration between architects, painters and sculptors that is exemplified by Candido Portinari's azulejo murals or Jacques Lipchitz's Prometheus for the Ministry of Education Building in Rio, designed by Lúcio Costa with Niemeyer, Affonso Eduardo Reidy, Jorge Moreira, Carlos Leão and Ernani Vasconcellos. He welcomes the complementation of rigorously geometrical architecture by figurative or loosely delineated sculptures and murals. Sculpture gets an individualized assessment:

*Lipchitz's work in Brazil, Rivera's and Noguchi's reliefs in the liner Argentina, and Calder's mobile in the Terrace-Plaza, suggest that later experiments of modern sculptors with voids, with linear elements in space, and with motion, can provide more satisfactory adjuncts to modern buildings. The transparent or fluttering planes and the materialized lines of force in this new work are peculiarly consonant with new building methods and sympathetic to the basic plastic expression of modern architecture.*<sup>4</sup>

The later experiments that Hitchcock refers to are those of Henry Moore and Barbara Hepworth in the 1950s. Hitchcock does not register Lipchitz's "transparent sculptures" or their debt to earlier Alexandr Archipenko work. Archipenko is the one who introduced the hole as a device to relate plans on the opposite sides of a sculpture at torso height.<sup>5</sup> He had thus expanded the range of voids in sculpture, traditionally restricted to the articulation of members among themselves and with the body or base. Lipchitz was a member of *L'Esprit Nouveau* staff and voids appear in his work after he occupies the house-studio designed for him by Le Corbusier (1925).<sup>6</sup> Commenting on the work of Lipchitz, Hitchcock says that the massive forms of traditional sculpture rarely match the fluid spaces and light volumes of modern architecture.<sup>7</sup> Presumably, Mies's Barcelona Pavilion is an exception, given the convincing contrast between its orthogonality and the roundness of the female nude by Kolbe in its enclosed patio. Commenting on the work of Moore, Hitchcock reiterates that its plastic shapes are complementary rather





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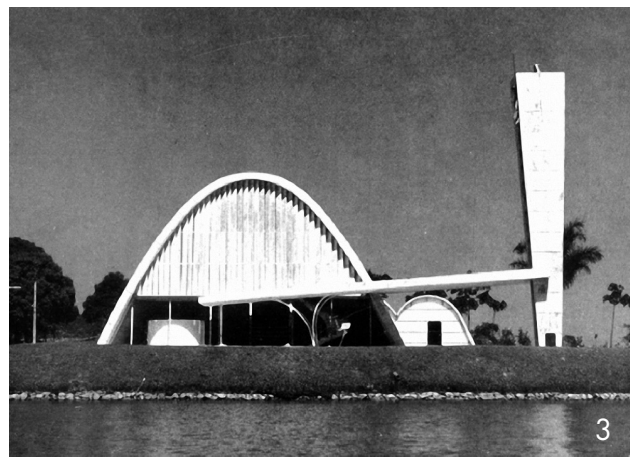


Figure 1. **Lúcio Costa, Oscar Niemeyer, Affonso Eduardo Reidy, Jorge Moreira, Ernani Vaconcellos, Carlos Leão**, Ministry of Education Building, Rio de Janeiro, 1936-1945  
Photo from CPDOC, Fundação Getulio Vargas, Rio de Janeiro.

Figure 2. **Lúcio Costa, Oscar Niemeyer, Affonso Eduardo Reidy, Jorge Moreira, Ernani Vaconcellos, Carlos Leão**, Ministry of Education Building, Rio de Janeiro, 1936-1945  
Photo by Marcos Almeida 2004

Figure 3. **Oscar Niemeyer**, St. Francis Chapel, Pampulha, Belo Horizonte, 1942-1946.  
Photo from F. S. Lincoln, 1939. © Brazil Representation to the New York World's Fair, 1939  
H. K. Publishing, USA.

than similar to those of modern architecture.<sup>8</sup> He misses the affinity between the “transparency” of a branch of modern sculpture and the “porosity” of Brazilian modern architecture. It is a characteristic quality that stems from the reiterated use of a variant of the void between two solids arrangement, in which the intermediary element is a hole that reveals the depth of the built volume and generally is found at its base, including public or semi-public routes across it.<sup>9</sup>

Porosity is present in almost all the prominent works of the 1936–1945 period. In the Brazilian Press Association Building by Mauricio and Milton Roberto, a vehicular route is incorporated to the hole, an open hall of trapezoidal plan between two stores with wide street frontages; the elevators at the rear stand next to the narrow passage leading to the parking area in the block’s internal courtyard. In the Ministry of Education Building, the hole is a rectangular hypostyle portico between two north and south esplanades and two east and west hallways; the granite pavement unifies portico and esplanades. In the Brazilian Pavilion at the New York World’s Fair of 1939, by Costa and Niemeyer, the route rises to the piano nobile: a curved ramp to one side and a straight staircase on the opposite side lead to a terrace between the main exhibition gallery and auditorium; the hole turns into a loggia that comes alive with the curves of the auditorium and the slab that roofs part of its rectangular plan. On the ground floor, the pores multiply as screens and passages alternate. In Niemeyer’s Ouro Preto Grand Hotel, the climate is at once austere, rustic, bustling. Rectangular in plan and stepped in section, flanked by one block where the restaurant and its terrace are superimposed to the kitchen and another where reception is superimposed to a game room, the hole is a majestic portico-terrace along the access esplanade and an intimate verandah along the hillside opposite; a hollow screen divides the two sections. In all cases, columns and pillars of diverse sections and materials add to the excitement. In Costa’s modest and primitive Nova Friburgo Park Hotel, the hole is a verandah open to the park view and reduced by a wooden screen at the side of the entrance, which is in turn associated with a sequence of aligned holes (entrance door, window behind reception desk, verandah). At the Pampulha Lake complex by Niemeyer, the ground floor at the Yacht Club replicates the multiplication of screens and passages at the Brazilian Pavilion’s ground floor. At the dance hall to one side, the hole is a terrace covered by a sinuous slab linking the lounge to the bandstand and developing lengthwise between the forecourt and a parapet by the lake. At the chapel to the other side, the hole is an asymmetrical narthex or portal, defined by an inclined marquee that links the vaulted church nave to the

bell tower. In Rio’s Santos Dumont Airport designed by the Roberto brothers, the hole is the lobby, rectangular, airy and majestic, open to the street, glazed on the air-field side and crossed by a colonnaded gallery.

The hole distinguishes significant projects too. Reidy re-elaborates the ground floor of the Ministry of Education Building at the Rio de Janeiro Town Hall; his bar in a public square anticipates the Pampulha Dance Hall. Superimposed holes appear in Niemeyer’s design for the Henrique Xavier townhouse. At his Pampulha Hotel, the hole moves to the second floor, under the apartments’ slab, and gives a street view to the roof garden of a base that expands towards the lake. His Yacht Club in Botafogo is a grander version of the Pampulha Yacht Club.

In each of these examples, the floor planes defined by pavement and/or vegetation are an active element of composition, related to the building proper as base and sculpture in the same or similar material. The impression of porosity would weaken without a limited ground. The resulting transparency is a framed immediate transparency, distinct from both the literal, mediate transparency and the phenomenal transparency analyzed by Colin Rowe.<sup>10</sup>

The influence of sculpture on Brazilian modern architecture cannot be proved, although the Costa group was familiar with the Lipchitz “transparent” through *L’Esprit nouveau* and Le Corbusier’s *Œuvre complète*, where one of them can be seen in Madame de Mandrot weekend house’s garden.<sup>11</sup> The same applies to the influence of Arp’s curves on Aalto and Niemeyer. Hitchcock is careful and notes that, if later “abstract art such as Arp’s helped to ease and broaden the expressive possibilities of modern architecture, there are probably other sources than Arp for Aalto and Niemeyer.”<sup>12</sup> In the case of Niemeyer and Burle Marx, they certainly include the curves in the picturesque garden diffused in Brazil by Grandjean de Montigny in 1820 and Auguste Glaziou in 1860; by the end of the century, amoeboid beds and ponds were ordinary elements of the central square in every small town of the country.<sup>13</sup> By the way, the expression “picturesque garden” recalls the debt to painting of this English invention. Painting is clearly a reference in the design of circuit parks punctuated by follies such as Stowe and Stourhead, but the landscapes of Poussin and Claude are in turn tributaries of classical architecture. Interaction between the different arts can resemble a game of ricochets. The sources of Arp’s amoeboid boards probably include the same landscaping features that impact Niemeyer and Burle Marx.<sup>14</sup>

The idea of an exchange between architecture and painting in the 1920s is supported by the dispute between Perret and Le Corbusier, which the former attacks

as “form maker”.<sup>15</sup> The interest of the Brazilian modern architect in the integration of visual arts to public works appears both in the Ministry of Education Building and the New York Pavilion as at Pampulha. That said, the Brazilian articulation of architecture and sculpture is probably subliminal, and precedents can be found in the modern architectural repertoire. Gropius’s Bauhaus and Melnikov’s Russian Pavilion at the Exposition of Decorative Arts in Paris (1925), are buildings pierced by public routes. Le Corbusier proposed huge holes in the suburban housing of his Contemporary City (1922). At least two examples come from the distant past, in case Roman triumphal arches and bridges are dismissed. Mansart’s Grand Trianon has two wings joined by an open hypostyle gallery, whose floor extends on both sides as platforms accessible by stairs. The Propylaeum is a hypostyle portico that mediates between distinct planes.



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Not everything is then influence of an art over another, but their reciprocal stimulation seems undeniable, subordination to architecture included (as postulates the older tradition) or not (as proposed by the increasing autonomy of each art in bourgeois society). Whether in parallel or sequence, plastic research in architecture, painting and sculpture can operate independently but converge on purpose without a conscious notion of convergence, possibly the by-product of some common sentiment, the “spirit of the age”. So, the relationship of modern architecture and abstract painting may be interpreted in terms of reference, according to chronology, or, a posteriori, in terms of confirmation. In the preface to Hitchcock’s essay, Alfred Barr, director of New York’s Museum of Modern Art, notes that many factors influence architectural form,

but adds that painting was not among them before the twentieth century. This is a half truth given both eighteenth century English circuit parks and nineteenth century French reading rooms: the paintings of Pompeii depicting an imaginary architecture count among the sources of Henri Labrouste for the slender iron structures in his libraries.

Admittedly, however, the importance of painting and sculpture to architecture increases in the twentieth century, in direct proportion to their autonomy in the face of architecture. In large measure, that happens because the search for inspiration in forms outside the conventional territory of architecture becomes commonplace. Abstract art becomes a mine for the avant-garde architects in the same way and at the same time as civil engineering works, utilitarian buildings and industrial artifacts.

As an alternative to the reuse of historic motifs that Hitchcock emphasizes, the role of abstract art is similar to that played by silos, factories, bridges, sheds, skyscrapers, ocean liners, airplanes, automobiles and the like. Construction, industry and avant-garde art combined to support the formal simplification and minimization of the material elements of architecture, the repudiation of ornament and a centrifugal composition where balanced asymmetry replaces hieratic symmetry and hierarchical centralization. Neither does Hitchcock notice that the generic strategy is the same used by the architects of eclecticism. A representation involves the reiteration of formal



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Figure 4. **Alexander Archipenko** *Struggle*, bronze cast 7/8, 1914 (Ukraine 1887-1964, active in France and the US) Milwaukee Art Museum, photo by Larry Sanders.

Figure 5. **Jacques Lipchitz** *Reclining Woman with Guitar*, bronze, 1928. © Estate of Jacques Lipchitz, courtesy Marlborough Gallery, New York.

Figure 6. *Archer*, bronze, **Henry Moore**, 1964-1965, New National Gallery, Berlin.





relevant precedents. The uses of the Gothic style as expression of national identity (in France and England, for example) or Christian religiousness (more or less everywhere) were justified by the association of this style with the founding of the nation or the age of faith. The characterization of nation or religiousness involves the recollection of their emblematic figures. The modern architect's concern with the expression of the zeitgeist is explicit and can be equated to concern with the characterization of the age, involving the recollection of its emblematic figures. Part of the dispute between Le Corbusier and Perret regards the latter's refusal to characterize the modern age through transient machinist and/or atectonic motifs. For Perret, there was no reason to displace concepts, looking beyond the disciplinary tradition. Structural rationality and classically inspired compositional rigor were enough.<sup>16</sup>

However, the dispute stays in the family. Convinced that all architecture is always construction, but not every construction is architecture, therefore aware of the traditional definition of architecture as qualified building, Le Corbusier founds the theory of modern architecture on a flat slab structure of the Dom-ino type: the skeleton

that endures more than the flesh. The architecturization of forms that are foreign to the discipline's erudite repertoire is a strategy that signals transience and enlivens the permanent ordering mainstay. At the limit, the formula even accepts Perret's structural rationalism and the external display of the skeleton in the façade that it mandates.

For Brazilian modern architects in the 1930s and 1940s, architecture is still qualified construction. A Dom-ino type structure is its foundation, but porosity helps to distinguish their work from that of Le Corbusier. Nothing illustrates it so well as a comparison between the base of the Ministry of Education, built according to the design of Costa and his team as a void between two solids, and the base of the Ministry proposed as a central solid between two hollow ends by the Franco-Swiss architect for another site.

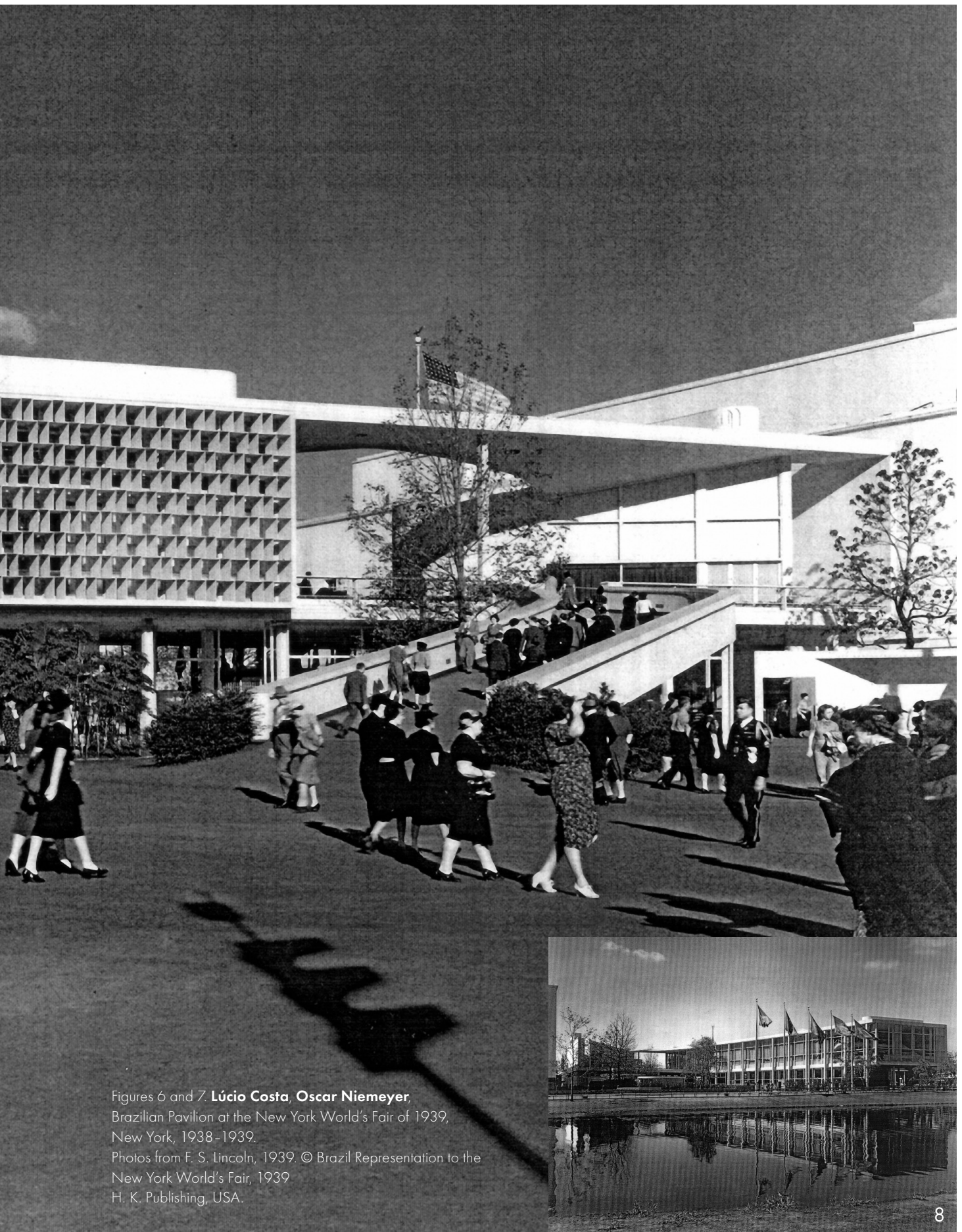
Combining fully subtractive composition procedures with a limited ground, porosity implies pushing an archetypal scheme to its limits, and thus connotes continuity within rupture. Part of the formal diversification aiming to overcome the limitations of the international style as defined in 1932 by Johnson, Hitchcock and Barr,<sup>17</sup> porosity enriches the disciplinary repertoire. It does not involve a



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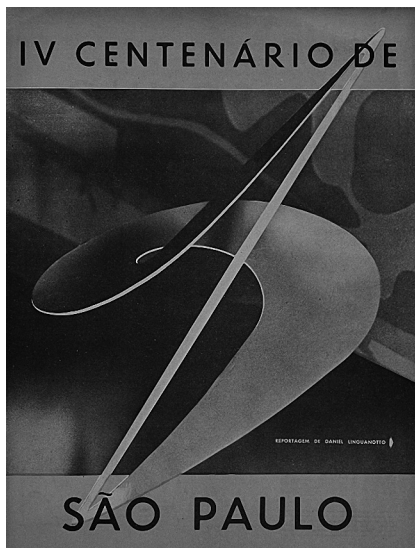
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Figures 6 and 7. **Lúcio Costa, Oscar Niemeyer**,  
Brazilian Pavilion at the New York World's Fair of 1939,  
New York, 1938-1939.  
Photos from F. S. Lincoln, 1939. © Brazil Representation to the  
New York World's Fair, 1939  
H. K. Publishing, USA.





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Figure 9. **Oscar Niemeyer**, *Sculpture for Ibirapuera Park*, São Paulo, 1954.

Photo from *Fantasia Brasileira: o balé do IV Centenário* (São Paulo: SESC, 1998).

denial of flatness, but its manipulation in order to gain texture, thickness, depth, relief; in short sculptural qualities. These are not inherently Brazilian but are certainly appropriate to a climate that allows the interpenetration of indoors and outdoors all year round. After all, sculpture is much closer to architecture than painting, even though sculpture has no commitment to inhabitation.

The parallel lives of these porous architectures and transparent sculptures have gone unnoticed, because an interpretation that reduces Brazilian efforts to national or regional modernism still prevails. However, after 1950, as Brazilian modern architecture becomes controversially identified with the work of Niemeyer and examples of porosity decrease, comments on its sculptural qualities increase. Their recognition informs the criticisms that classify Brazilian and/or Niemeyerian modern as baroque, whether praising its plastic triumphs or chastising its supposedly formalist penchant.

In fact, the supports of Niemeyer then gain weight, branch out and become biomorphic. The planes that curve defining volumes are no longer limited to the roof. Incursions of the architect in the realm of pure sculpture are inaugurated with a large but airy piece marking the entrance of Ibirapuera Park, reminiscent of the work of José de Rivera illustrated in *Painting Toward Architecture*. Niemeyer is often compared to Aleijadinho, the most famous Brazilian architect and sculptor of the baroque period. It should be noted that the “architecturing toward sculpture” trend is international in the 1950s, involving at least Le Corbusier, Aalto and Eero Saarinen. At the same

time, the complementation of modern monumental projects by sculpture of heroic proportions becomes commonplace. Henry Moore, Grand Prix at the 1953 São Paulo Biennial, is the author of *Reclining Figure* (1957–1958) in front of Breuer’s Unesco headquarters in Paris, a project that was selected by a committee of which Lúcio Costa was a member. Barbara Hepworth, Grand Prix at the 1959 São Paulo Biennial, is the author of *Singular Form* (1964) in front of the ONU headquarters in New York, a project in which Niemeyer’s input was decisive.

Part of the inattention to the exchange between sculpture and modern architecture might have to do with the inferior status of sculpture in relation to painting. In *The World as Sculpture*, James Hall argues that sculpture was the poor cousin among the arts from the Renaissance to the nineteenth century, requiring more physical effort for its making and assessment. While painters might aspire to be gentlemen, sculptors were considered as manual workers rather than creative geniuses, copyists rather than original artists. Hall thinks that sculpture becomes paradigmatic in the visual arts in early twentieth century.<sup>18</sup> Its subordination to painting by Hitchcock suggests that recognition of this phenomenon is far more recent. Either way, the current prestige of sculpture is undeniable and archisculpture is a common word, after many nods by architects to minimalism and land art in the 1990s.<sup>19</sup> Contrary to Robert Venturi’s wishes, “ducks” seem to have won over “decorated sheds” by a mile, defended as memorable exceptions featuring extraordinary structures amid repetitive—and boring—boxes of skeleton structures.<sup>20</sup> Given such a situation, the Brazilian endeavor recalled in these notes might have far more than historical interest and even suggest different approaches to present day difficulties.

#### Notes

1. Henry-Russell Hitchcock, *Painting Toward Architecture* (New York: Duell, Sloan and Pearce, 1948).
2. Hitchcock, *Painting*, 54.
3. Hitchcock, *Painting*, 102.
4. Hitchcock, *Painting*, 52. Cincinatti’s Terrace-Plaza Hotel was designed by Skidmore, Owings & Merrill.
5. Representative pieces by Archipenko are *The Struggle* (1914), bronze, Milwaukee Art Museum, and *Woman Combing her Hair* (1915), bronze, Museum of Modern Art, New York. Moore only explores the hole in his third phase (1931–1939). See Herbert Read, *The Work of Henry Moore* (London: Thames and Hudson, 1965), 60–62.

6. See Alan G. Wilkinson, *The Sculpture of Jacques Lipchitz: a Catalogue Raisonné. Volume 1: The Paris Years 1913-1940* (London: Thames and Hudson, 1996).
7. Hitchcock, *Painting*, 106
8. Hitchcock, *Painting*, 108.
9. Classical references for Brazilian modern architecture are Philip Goodwin and George Kidder-Smith, *Brazil Builds* (New York: Museum of Modern Art, 1943) and Henrique Mindlin, *Modern Architecture in Brazil* (Rio de Janeiro, Amsterdam: Colibris, 1956). For a detailed analysis and more complete iconographical reference, see Carlos Eduardo Comas, *Précisions brésiliennes sur un état passé de l'architecture et de l'urbanisme modernes d'après les projets exemplaires de Lúcio Costa, Oscar Niemeyer, MMM Roberto, Affonso Reidy, Jorge Moreira & cie., 1936-45* (PhD dissertation, Université de Paris-VIII, 2002). There is a Portuguese translation by the author—*Precisões brasileiras*—at [www.lume.ufrgs.br/handle/10183/10898](http://www.lume.ufrgs.br/handle/10183/10898). For a comparison between different Ministry of Education building designs, see Carlos Eduardo Comas, "Modern Architecture, Brazilian Corollary," *AA Files* 36 (1998). For an overview, see Carlos Eduardo Comas, "Report from Brazil," in Jean-François Lejeune (ed.), *Cruelty and Utopia: Cities and Landscapes of Latin America* (New York: Princeton Architectural Press, 2005).
10. Colin Rowe and Robert Slutzky, "Transparency: Literal and Phenomenal," in *The Mathematics of the Ideal Villa* (Cambridge: the MIT Press, 1976), 159-183.
11. Le Corbusier, Pierre Jeanneret and Willy Boesiger (eds.), *Œuvre Complète 1929-1934* (Zurich: H. Girsberger, 1935), 62. For the commission of the Lipchitz sculpture for the Ministry of Education building, see Mauricio Lissovsky and Paulo Sá, *Colunas da Educação* (Rio de Janeiro: Minc/IPHAN; Fundação Getúlio Vargas/CPDOC, 1996), 277-297.
12. Hitchcock, *Painting*, 102.
13. French architect Grandjean de Montigny, Prix de Rome, came to Brazil in 1817 and was the first director of the Course of Architecture at the Academia Imperial de Belas Artes, Rio de Janeiro. French engineer and landscape architect Auguste Glazou came to Brazil in 1858 to be responsible for the parks and gardens of the Brazilian Imperial House.
14. Carola Giedion-Welcker somehow confirms (or anticipates) the author's location of the sources of biomorphism in the picturesque garden, when she compares Arp's sculpture with snow-laden pebbles in a Swiss mountain river or, very specifically, with the Glacier mill from the nineteenth century "Gletschergarten" in Lucerne, according to Stanislaus von Moos in an email to the author, February 10, 2009.
15. See AAVV, *Encyclopédie Perret* (Paris: Éditions du Patrimoine, 2002), chapters 11 ("Environnement architectural") and 12 ("Critique et débats"). Also Peter Collins, *La Splendeur du béton* (Paris: Hazan, 1995), 290 (column 2), translation of *Concrete* (London: Faber & Faber, 1959), last chapter ("Le maître"), specially page 524, commenting on the Mondrian manifesto on the affinities between modern painting and architectural conception published in *L'Architecture vivante* (1925).
16. See Alan Colquhoun, "Displacement of concepts in Le Corbusier," in *Essays on Architectural Criticism* (Cambridge, London: MIT Press, 1981).
17. Henry-Russell Hitchcock and Philip Johnson, *The International Style* (New York: Norton, 1966 [1932]).
18. James Hall, *The World as Sculpture* (London: Chatto & Windus, 1999).
19. See Markus Bruderlin (ed.), *Archisculpture* (Ostfildern: Hatje Kanz, 2004).
20. For the comparison between "ducks" and "decorated sheds", see Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge: The MIT Press, 1972).

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