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Image: Michaelmore, Roeger & Russell, *Chester House*, Belair 1966, State Library of South Australia BRG 346/28/6/2.

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Healing Modern Architecture's Break with the Past: Musings around Brazilian Fenestration

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Keywords

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Tropical building
Brise-soleil
Barrie Biermann
Identity

Abstract

This paper focuses on the role of Brazilian architects in emancipating Modern Architecture from overly limiting orthodoxies. In particular, this study follows direct, if weak influences across the Pacific to Australia and stronger ones across the South Atlantic to Southern Africa, where Brazilian ideas found fertile ground without being filtered through Northern Hemisphere mediations. Official delegations of architects from Australia and South Africa went to Brazil seeking inspiration and transferable ideas achieved mixed success.

Central to the theme of this essay is a recently discovered and unpublished manuscript. It is the work of Barrie Biermann who, upon graduation from the University of Cape Town sailed across to Brazil in 1946 to gain first-hand knowledge of the architecture that had achieved worldwide renown through the 1943 *Brazil Builds* exhibition at the Museum of Modern Art in New York (MoMA).

Biermann's close observations and discussions with several of Brazil's leading architects helped him develop a fresh narrative that placed recent developments in a continuum linked to Portuguese colonial architecture that had taken lessons from the 'East'. Published in a very abridged form in a professional journal in 1950, it lost much of the charm of the original, which, in addition to imaginative theoretical speculation, is enriched by evocative, atmospheric sketches, water colours and photographs.

This study shows that South-South connections were quite independent and predated the influence of 'scientific' manuals of 'how-to build in the tropics' that proliferated from metropolitan centres in the mid-1950s, preparing for decolonization but perhaps also motivated by ambitions of engendering other forms of dependence. Brazilian ideas and examples of built work played an important role in bringing vitality to some of the architectures of Africa. They also engaged with crucial issues of identity and the production of buildings celebrating values beyond the utilitarian.

At the 1939 New York World's Fair, Brazil's pavilion, designed by Oscar Niemeyer and Lucio Costa, challenged the orthodoxies of modern architecture. Previously outlined in 1932 by Philip Johnson in his introduction to MoMA's catalogue for '*Modern Architecture: International Exhibition*', Modernism's orthodoxies were further elaborated by Alfred H Barr in explaining the exhibition's objective was to:

1. Alfred H Barr, 'Introduction', *Modern Architecture: International Exhibition*, New York: MoMA, p. 15.

...enable the visitor to understand what is meant by the International Style and how it differs from the modernistic or half-modern decorative style, which with the persistence of the revived styles of the past, has added so much to the confusion of contemporary architecture.¹

In his 'Historical Note' Johnson extrapolated on the style's advances beyond when:

2. Ibid, Johnson, 'Historical Note', p. 19.

"...Architects indulged in arbitrary curves, zig-zags and fantastic decoration, breaking down all formal discipline, traditional or structural..."²

Heroes of Johnson's exhibition were Mies van der Rohe, Le Corbusier, J.J.P Oud and Walter Gropius, whose 'International Style' celebrated clean unornamented rectangular forms with copious glazing on the same plane as the external walls.

3. Caption to Plate IV, 'Brazil', *Architectural Review*, vol. XLXXXVI, no. 513, 1939.

Brazil's pavilion challenged orthodoxy in two respects; firstly, in plan the mezzanines deployed confident 'arbitrary curves' and secondly, glazing on the South façade was masked by an assertive sun-breaker. The latter was promptly dismissed by the *Architectural Review (AR)* as purely ornamental; 'a unit of display rather than of function...'³

4. Philip Goodwin, *Brazil Builds*, New York: MoMA, 1943, p. 7. The original publication, now out of print, can be downloaded from the MoMA site: <https://www.moma.org/calendar/exhibitions/2304>.

However, by 1943 such misunderstandings gave way to adulation after MoMA's ground-breaking *Brazil Builds* exhibition that focused on: 'Brazilian architecture, especially their solutions for the problem of controlling heat and light on large exterior glass surfaces.'⁴

5. Ibid., Sun-shading in general, pp. 84-89, MES, pp. 106-111, AEB, 112-115.

In Rio and elsewhere prominent buildings had already expanded the vocabulary of modern architecture by challenging the 'International Style's' aesthetically motivated dream of large, unprotected glazing and flush façades. From 1936 shading devices of various types were being developed for Costa and Niemeyer's Ministry of Education and Health (MES) and the brothers Roberto ABI headquarters, where vulnerable Northern façades were protected with horizontal and vertical Quebra-Sol (Brise-soleil) elements.⁵ Earlier, in 1935, Luiz Nunes had used a sun-screening of precast 'cobogós' for Olinda's water tower.⁶

6. Ibid., p. 158.

7. 'Brazil', *AR*, v.95, 1944, pp.58-83.

The 1943 MoMA exhibition was a great success. The parts that travelled to wartime London received rave reviews in *AR*, the first of many celebrating Brazilian architecture's freshness and sophistication.⁷

Australia Flirts with Brazil

Departing before wartime hostilities ended in May 1945, an official 'mission' left Australia crossing the Pacific in a converted Liberator

8. C.V. Howard, *Architectural Mission to the Americas...* Report, Melbourne, 1945, [https://nla.gov.au:443/tarkine/nla.obj-99537218].

bomber, '...to obtain and assimilate first-hand knowledge of the very valuable contributions America and Brazil have made in the architectural field.'⁸

Sanctioned by Prime Minister Chifley, it was led by the Government's Chief Design architect, C. V. Howard.

9. Ibid., 30.

In Brazil they met officials and architects including Niemeyer finding it 'difficult to justify the use 'of sun-breakers both horizontal and vertical in large city buildings', preferring retractable blinds as far more economic and serviceable.⁹

Brazil's outdoor lifestyle also seemed inconceivable for Australians:

10. Ibid., 31.

Along Copacabana beachfront there are fifty or more open air cafes... If we had a similar set-up along our Pacific Beach Front our daily north-easterly would cause a lot of trouble and the first strong southerly would wreck everything.¹⁰

11. 'House at Sydney...Seidler...', *AR*, v.115, 1954, 317-321.

Fleeting 'fact-finding' missions were probably not ideal for learning from different cultures. Even Harry Seidler's short stint working for Oscar Niemeyer gave him experience he transferred to his first Australian project and influenced his later, mainly domestic work. It could however be argued that the emulation was superficial rather than absorbed sufficiently to contribute to the genesis of an Australian architectural identity.¹¹

Northern hemisphere publications also played their part in stimulating Australian designers to look beyond accepted British colonial models such as verandahs to shield tropical buildings from the sun.

12. W R Bunning, *Homes in the Sun...*Sydney: Nesbit, 1945.

Walter Bunning, in his 1945 booklet *Homes in the Sun*, invoked two Brazilian examples appropriate for Australian dwellings.¹² He illustrated both the MES sun-breakers and Bernard Rudofsky's São Paulo Arnstein house (1941) featured in *Brazil Builds*.¹³ He found the São Paulo house, with its multiple courtyard gardens, entirely appropriate for a hot climate: 'In such an arrangement living out of doors would be a delight.'¹⁴

13. Goodwin, 1943, pp. 106-111 & 170-173 respectively, illustrations in Bunning 1945, 58-59 under 'Climate'.

14. Bunning, 1945, p. 59, caption to image 111.

15. Karl Langer, *Sub-tropical Housing*, Brisbane: UQ, 1944.

Houses along similar lines were proposed for Queensland by Karl Langer in *Sub-tropical Housing* (1944)¹⁵ using integral pergolas, courtyards and walled gardens to enhance lifestyles tuned to the climate.

16. Numerous articles and whole issues were dedicated to Brazil in the architectural press of UK, Europe and the USA between 1943 and 1960 – for example:

Widely available technical literature on how to build in the tropics only began to appear in the mid 1950s, long after many solutions had been developed in Brazil – for example:

Maxwell Fry & Jane Drew, *Tropical Architecture in the Humid Zone*, London: Batsford, 1956.

Olgay & Olgay, Solar Control ..., Princeton: University Press, 1957.

O.H.Koenigsberger et al., *... tropical housing and building*, London: Longman, 1974.

By the 1950s these vocabularies of sun-protection, born in Brazil, had entered the vernacular of commercial and public buildings in Australia particularly in Queensland. But apart from Harry Seidler's city towers, few aspired to any iconic identity taking comfort instead in an international language of safe blandness.

17. John Macarthur et al. (eds.), *Hot Modernism – Queensland Architecture 1945-1975*, London: Artifice Books, 2015.

Before the mid-1950s examples of inventive solutions were circulating widely in journals and monographs on Brazilian and other Latin American architectures. Simultaneously publications on 'building science', originating locally, in Britain, the USA and elsewhere, provided recipes for shading devices tailored to specific latitudes.¹⁶ The convergence of science and a rapid growth in multi-story building construction resulted in solutions purged of cultural or regional character.¹⁷

By the 1960s, some designers recognized the limitations of the deracinated, techno-scientific approach and hungered for other architectural dimensions.

Following this spirit, Stephen Trotter was awarded the 1963 Australian Sisalcraft Research Scholarship in Architecture to visit countries with warm climates. In his published report, *Cities in the Sun*, he outlined his motivation:

18. Stephen E. Trotter, *Cities in the Sun*, Brisbane: St. Regis-A.C.I. Pty Ltd, 1964, pp. 1&2.

We Australian Architects, unlike our Colleagues in Southern Europe and South America, have no suitable national traditions to guide us in this environment. We can learn many of the fundamentals of ideal tropical and sub-tropical building from communities who have thrived for centuries in climates similar to those of Australia... As well as seeking technical solutions to buildings in this environment we have also to provide emotional solutions. The latter are the hardest to achieve.¹⁸

Trotter assembled personal observations focusing mainly on façades and methods of coping with ventilation, the sun and glare. He visited Brazil, Spanish-American countries and parts of Asia. Importantly, his profuse illustrations, photographs and marginal sketches display a continuum of past and present and distil thoughts from actual lived experience.

Reflecting on his wide-ranging pilgrimages to hot, dry and warm, humid regions, he concludes:

19. Ibid., 32.

Very little has been written on the physical, historical and psychological aspects of Tropical design by architects brought up in tropical environments. Most work in this field has been carried out by European born and trained architects carrying out commissions in tropical regions.¹⁹

South Africa Embraces Brazil

20. Roger C. Fisher et al. (eds.), *Architecture of the Transvaal*, Pretoria: University of South Africa, 1998.
Graham Owen, '...Architecture and Apartheid...' *JAE*, vol.42, 1989, 3-23

In the 1930s, South African architecture was emerging from an ideologically charged past which fell into two broad colonial traditions: the Dutch, with its baroque gables, thatched or flat roofs and whitewashed walls, established in the Cape in the 18th Century and the British, with its ubiquitous verandahs and varying architectural styles in tune with the latest fashions.²⁰

After the Boer war (1899-1902), Cecil Rhodes encouraged Herbert Baker to use Cape Dutch architecture as a reconciling vehicle of national identity. However, Baker and others brought Imperial Edwardian baroque to their public commissions, exemplified by the Union buildings in Pretoria.

But by 1925 European modern architecture was being discussed in the *South African Architectural Record (SAAR)* and in the 1933 a group of young Transvaal architects established direct links with Le Corbusier and published a manifesto, *zerohour*, showcasing their own work alongside European masters. In this publication even the sponsors'

21. Rex Martienssen et al., *zerohour*, Johannesburg: privately printed, 1933.

22. Fisher, 1998.

advertisements adhered to a strict graphic style.²¹

In contrast, a conservative tendency favoured August Perret, while the stream of emigres from Europe brought less constrained expressionist versions with them.²²

In 1945, an official delegation similar to Australia's went to Brazil and, upon returning, the President of the South African Institute of Architects addressed his audience:

23. 'Address of the President-in-chief, Mr. D. St. C Lightfoot', SAAR, June 1946, 145.

Most of you have probably seen illustrations in a book called "*Brazil Builds*". There are certain aspects of this work in plan and design that are extremely interesting, but I trust South African Architects will beware of attempting to copy this type of work without taking the climate and other conditions of our country into consideration before doing so... The standard of architectural design, and particularly the standard of the building finish of our jobs, is equal to anything I saw during my travels.²³

Interestingly, official members of both Australian and South African missions to Brazil found the enormous 'Quintadinha Hotel' in Petropolis the most memorable building. Their Brazilian hosts clearly missed no opportunity to show off this extravagant confection of French and Brazilian baroque to visitors from countries impoverished by the austerities of world conflict.

24. Gus Gerneke, 'From Brazil to Pretoria', in Fisher, 1998, 197-230.
Marguerite Pienaar, '...Norman Eaton Legacy...' UPretoria, MArch, 2013.
Marguerite Pienaar, '...Lessons from Brazil...', *Paranoá* 18, 2017, online: <https://periodicos.unb.br/index.php/paranoa/article/view/11780/10350>.

However, the South African delegate Norman Eaton, had a clear agenda that concerned his commission to design the Ministry of Transport building in Pretoria. By 1944, his scheme was sufficiently developed to seek out Niemeyer and other Brazilian architects' advice on sun-shading. As a perceptive designer he also recorded details of Roberto Burle Marx's landscapes and Copacabana's paving in his sketchbooks.²⁴ Eaton's Ministry project featured solar screening systems based on those at the MES as well as roof gardens inspired by those of Burle Marx. The project was abandoned in 1948 with a change in Government.

But talk of Brazil was in the air and Maxwell Fry, on a fleeting visit to Johannesburg from West Africa, was interviewed by enthusiastic students in 1945:

25. Gilbert Hubert and Sydney Abramovitch. 'Interview with Maxwell Fry', SAAR, May 1946, 131. [Interview 29-11-1945].

He spoke next of the considerable interest which the recent publications of Brazilian architecture had aroused. He deprecated this, as he felt that Brazilian architecture epitomised that inhumanity which South African architecture was leaving behind. He was confident, however, that Brazil would grow out of this stage. His comment on the Education and Health Ministry's building was brief and pithy. "I get as much pleasure in looking at a honeycomb."²⁵

26. Shelagh Nation, 'The background... Hellmut ... Stauch', UPretoria, MArch, 1985, 28 & 103-4.
Arthur Barker, '...Brazilian Modernism...' *Paranoá* 18, 2017, online: <https://periodicos.unb.br/index.php/paranoa/article/view/11781/1035>.

Earlier, in the 1920s, Helmut Stauch who studied in Berlin under Bruno Taut and Heinrich Tessenow took advantage of family connections in South-West Africa, where he constructed farm buildings in Windhoek's forbidding desert climate after making extensive studies on orientation and sun control.²⁶ Returning to Germany briefly, he worked with Marcel Breuer and Walter Gropius on housing projects before going back to Southern Africa in 1934. In Pretoria his skills as a modernist were in

demand. By 1948 Stauch decided to enrich his experience by seeing Brazilian architecture at first hand and meeting Niemeyer. There he was impressed by the master's capacity to make large creative moves but less so with his capacity of carrying projects through to detail.

After his return to South Africa, Stauch was commissioned to design a headquarters for the South African Meat Board (SAMB), his first design for an important public building at a time when the apartheid regime was seeking a new style of architecture in the hope of communicating a forward-looking break with the past. Although Stauch's building faithfully almost replicated MES's stately fifteen levels on four floors, it was acclaimed in SSAR:

[SAMB] clearly points to what can be done to free official architecture from the heavy hand of convention and outmoded tradition.

27. 'Editorial', SAAR, September 1952, 211.

...we have an official building which is a happy expression of formal architecture in contemporary terms, a building which is bright and colourful to the observer and comfortable for the occupants ... It is a worthy addition to a city already well endowed with good architecture.²⁷

28. 'The Meat Board Building, Pretoria', SAAR, September 1952, 212.

... it clearly reflects the architects' deliberate policy of creating an atmosphere both gay and friendly and an environment of comfort and concentration.²⁸

29. Nikolaus Pevsner, 'Johannesburg...', *AR*, vol. 113, 1953, 382.

Pevsner, on a visit to South Africa in 1952-3, praised Stauch's building as an 'extremely encouraging case'.²⁹ He also appreciated Johannesburg's modern, post-war flats in Hilbrow, which he dubbed:

30. *Ibid*, 381-2.

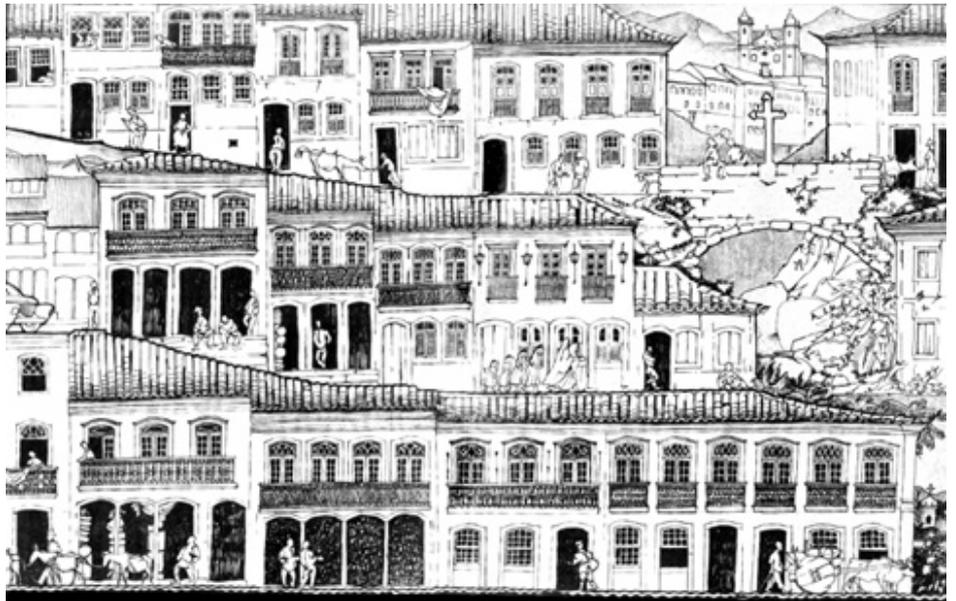
'a little Brazil in the Transvaal'... all of the same species of modern... They have horizontal windows, recessed or rectangularly projecting balconies and somewhere or other, projecting frames. The projecting frame is the hallmark of Johannesburg at this time. It reached the town with Rex Martienssen's own house ... The popularity of the motif may well be due to its wide acceptance by Brazil and the sudden fame won by Brazilian buildings thanks to Mr. Kidder Smith's gloriously illustrated *Brazil Builds* of 1943. ... The result is most impressive. Nowhere in England and indeed nowhere known to me in Europe or North America, can such a consistently up-to-date neighbourhood be seen.³⁰

31. C. Polwarth, '... Barrie Biermann ... Architectural Culture...Southern Africa', UNatal, MArch, 1994.

South African interest in Brazilian architecture, particularly among the younger generation, went beyond replication. Keen to understand its cultural background, Barrie Biermann, a third-year architecture student at Cape Town University in 1944, used his Helen Gardiner Travel Memorial Travel Prize, [awarded 1944, presented 1946] unpaginated manuscript.

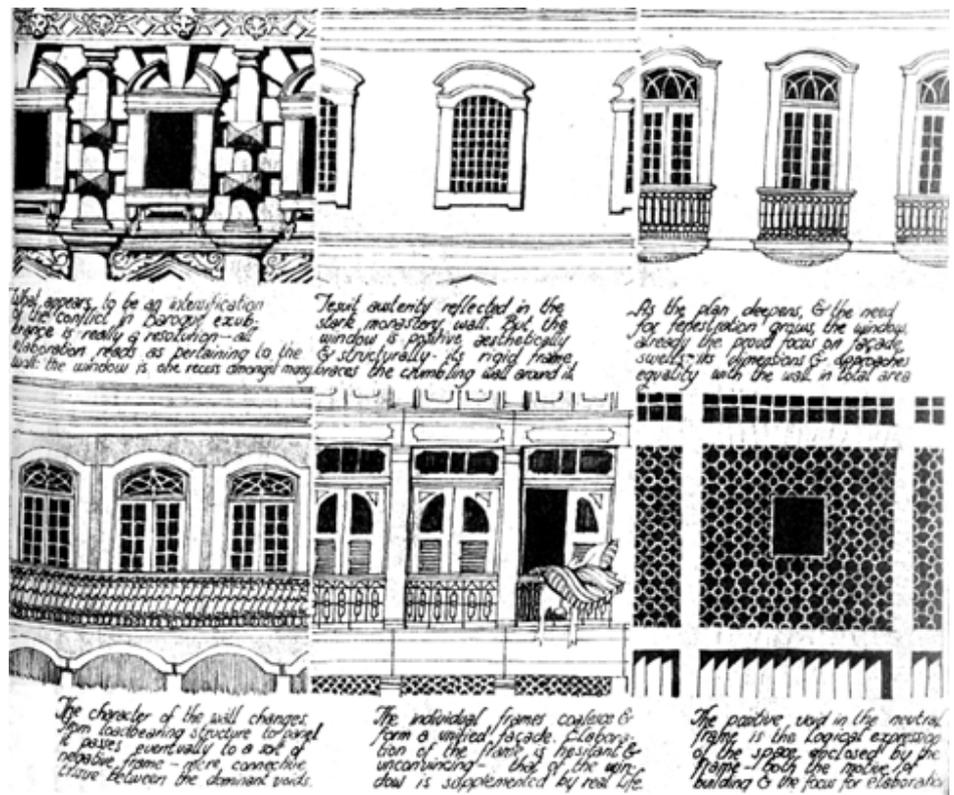
South African interest in Brazilian architecture, particularly among the younger generation, went beyond replication. Keen to understand its cultural background, Barrie Biermann, a third-year architecture student at Cape Town University in 1944, used his Helen Gardiner Travel Scholarship to make his way across the Atlantic to Brazil as a deckhand on the *Albatross*, a twin-masted schooner.³¹ Without limiting time constraints he could widen his interests to speculate on the evolution of Brazilian façades. His manuscript report, submitted long after his return, is an exquisite document of beautiful water-colours, drawings, photographs and diagrams with a personal but intensely perceptive narrative.³²

32. Barrie Bierman, 'Observations on Fenestration in Brazil', *Report Helen Gardner Memorial Travel Prize*, [awarded 1944, presented 1946] unpaginated manuscript.



Figures 1: Barrie Biermann's drawings from the 1947 manuscript 'Observations on Fenestration in Brazil', illustrating his theory on the evolution of façades. The report has numerous drawings like these along with watercolour sketches. The part covering modern buildings uses photographs, some of these featured in his article with the same name, published in the *South African Architectural Record* in July 1950. Figures 1, 2 & 3 by kind permission of Susanné and Guillaume Liebenberg, heirs to Barrie Biermann and copyright holders.

Biermann based his study on close observation of Portuguese colonial architecture, with its distinctive framing of openings and corners with wrought stone, surrounded by plastered rubble masonry united by large amounts of lime mortar. This labour-intensive coastal vernacular relied on burning seashells for lime. In inland regions of Brazil where lime was unobtainable, timber framed buildings with wattle and daub maintained the expression of framed openings. Biermann constructed a narrative of evolutionary progression detecting that as urban sites became narrower, the plastered masonry panels between the frames eventually disappeared, resulting in façades composed almost entirely of framed openings. (Figs. 1 & 2.)



Figures 2: Here Biermann illustrates the stages of architectural evolution where frames progressively cease to be ornamented incidents in the wall and become neutral architectural elements framing a 'positive void', here shown as one of the bays in Lucio Costa's Parque Guinlé housing project in Rio de Janeiro.

In Biermann's account, the frame, which had hitherto been the bearer of architectural embellishment, became neutral while the field within the frame became a 'positive void' charged with taking on many duties, not only addressing practical issues of privacy, daylighting, sun-control and ventilation but carrying a multiplicity of other roles as the primary elements of architectural expression. Biermann's caption to an illustration of Lucio Costa's recently completed Parque Guinlé apartments states: 'An exquisite example of the positive void ... this block of flats ... represented the highest stage of development of the conditioned wall in multi-storied work...'; adding:

33. Barrie Bierman, 'Observations on Fenestration in Brazil', *Report Helen Gardner Memorial Travel Prize*, [awarded 1944, presented 1946] unpaginated manuscript.

Indeed, of all the modern architects in Brasil whom I had the opportunity of meeting, Lucio Costa alone was both theorist and designer. It must be admitted that his influence on his contemporaries is great, a fact they themselves acknowledge; but while at the time of my visit his use of the multi-purpose panel was the most refined, neither the theory nor the design initiative of the conditioned wall came directly from him. The new elements evolved independently in the hands of many men. The brothers Roberto in Rio have consistently developed the fixed "fin" which they first applied in the ABI building, while Dr. Rino Levi in São Paulo has for a long time been developing the grille and the conditioned wall as such. At the time when I was in São Paulo his treatment of the conditioned wall seemed to me to be the furthest advanced.³³

Remarking that Levi designed intuitively, Biermann says he:

34. Barrie Bierman, 'Observations on Fenestration in Brazil', *Report Helen Gardner Memorial Travel Prize*, [awarded 1944, presented 1946] unpaginated manuscript.

would as like as not be surprised that any theory could be demonstrated in his work ... In the design of his own house the form and function of these new elements are very well exemplified. Both for privacy and orientation the house turns its back on the streets, and the unbuilt area of the site is interrelated with the rooms as garden courtyards, on the lines of the Arnstein House (*Brazil Builds*) nearby.... The conditioned wall serves to relate the interior rooms to the exterior rooms, and both to the street. "House without Windows" is my own phrase. The Rino Levi house represented at the time of my visit (1946) the foremost example of the decline of the window and the emergence of the conditioned wall, and the success of the element in that context seemed to me to be a sufficient justification of, and provided the motive for, this report.³⁴

35. Barrie Biermann, 'Observations...excerpts from the report...' SAAR, Jul. 1950, 151-162.

Bierman worked his way home on another, less glamorous sailing ship and in 1950 published an abridged version of his report in SAAR in which he reflected further on what he had learnt in Brazil, expanding on lively conversations with Vilanova Artigas on roofs and gables and his reflections on the rapid evolution of the quebra-sol in the work of the brothers Roberto.³⁵ He reported that, in the ABI building, where the vertical fins were retained by projecting slabs at each level it was found that the heavy elements, trapped heat and could be replaced with lighter, detached fins to provide:

36. *Ibid.*, 159.

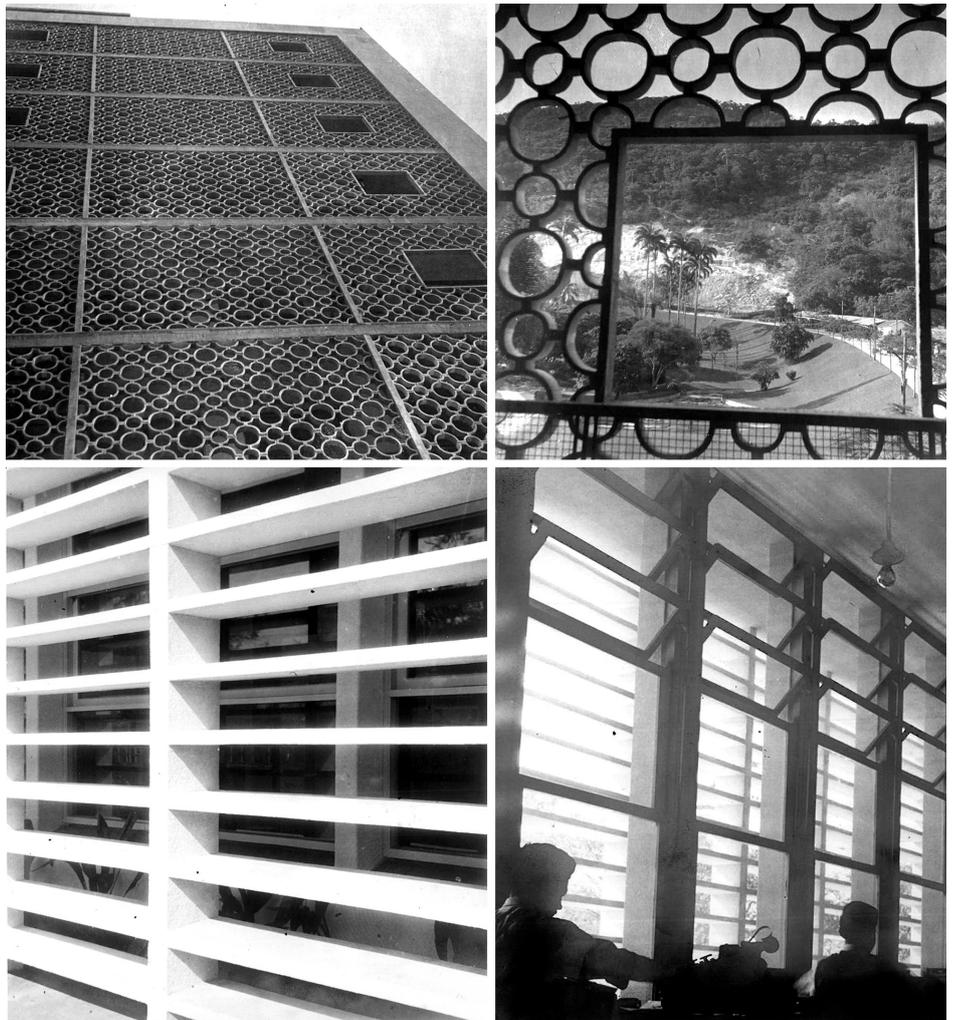
... a movement of cooler air in front of the glass wall ... Thus the new element began to take final shape in one form — a projecting mask, free of the façade proper, which is the glass wall of the enclosed space.³⁶

He speculated that conditions would improve further if, instead of paving:

37. *Ibid.*

...the provision of a vegetable "cooler" — densely growing plants on damp ground — immediately in front of the façade is a refinement which awaits advances in town planning practice.³⁷

He had seen such arrangements in Rino Levi's house and published a section of the multi-layered façade showing the cooling vegetation between a quebra-sol grille and the window.



Figures 3: Images from Biermann's manuscript showing buildings photographed by him on his visit to Brazil covering recent developments (1947). Many of the photographs are of buildings completed since the MoMA *Brazil Builds* exhibition of 1943, including those above. Top row, External and internal view of screen walls in ceramic 'claustra', Parque Guinlé by Lucio Costa. Bottom row: external and internal view of screening to a factory office in São Paulo by Rino Levi: the 'Conditioned Wall' – note the planting between the screen and windows.

To encourage South African architects to think critically about their own unique material and climatic circumstances he suggested that:

38. Barrie Biermann, 'Observations...excerpts from the report...' SAAR, Jul. 1950, 162.

... by adopting techniques like these, which render their buildings eminently habitable by relying on the operation of simple physical laws without the aid of fallible and expensive mechanical contrivances such as fans, blinds, air-conditioning systems and the like, architects can render the community a better service.³⁸

Biermann reflected on the cultural heritage of Brazilian architects and how this had favoured the development of their ideas:

The essence of the new architectural forms in Brazil may be expressed in the terms "partial enclosure" or "modified enclosure," or, better still, "conditioned enclosure"; while their successful appearance and performance can only be ascribed to clear thinking (good design) and

39. Barrie Biermann, 'Observations...excerpts from the report...' SAAR, Jul. 1950, 154.

boldness...The conventional European concept of modified enclosure is an enclosed volume with modification achieved by poking one or more holes in the enclosing envelope. In the East, or rather among the Eastern peoples, with their experience of tropical climates, the business of enclosure has been more subtle, and the walls of their buildings have often tended to be veils rather than blankets. The Portuguese have through various channels absorbed some of these Eastern influences, and in their South American colony these found fertile soil for growth.³⁹

Bierman's subsequent career as a distinguished teacher, author and academic was wide-ranging and inclusive. In his short, 1955 *Boukuns in Suid-Afrika*, all contributors, Dutch, British and Indigenous, were included. In the design of his own house in Durban, he explored tuning spaces to benefit from subtle readings of orientation, breezes and rainfall, paralleling ideas of warm climate architects such as Geoffrey Bawa and Anjalendran in Sri Lanka.

40. Lucio Costa, 'Documentação necessária', *Revista do Serviço do Patrimônio Histórico e Artístico Nacional*. (RSPHAN) v.1, 1937, 31-40.

Bierman's ideas may also have been reinforced in discussions with Lucio Costa, who had argued in 'Documentação Necessária' that to ground modern architecture in Brazil it needed nourishment from vernacular and colonial precedents.⁴⁰

Conclusion

41. Clinton Harrop-Allin, Norman Eaton: Architect...Cape Town: Struik, 1975.

42.

43. Sylvia Ficher & Marlene Milan Acayaba, *A quatro mãos: Arquitetura Moderna Brasileira, 1978-82*, *Revista de arquitetura e urbanismo*, 2011. <https://mdc.arq.br/2011/03/29/a-quatro-maos-arquitetura-moderna-brasileira-1978-82/>.

Enthusiastic Southern African architects in the 1950's, after replicating Brazilian forms somewhat uncritically, took a deeper look. Norman Eaton for example, drawing upon his experiences and sketchbooks from Brazil and East Africa, developed a widely eclectic and personal portfolio stretching from moderately fictional 'restorations' of Cape Dutch architecture to romantic borrowings from indigenous cultures.⁴¹ Perhaps the most original response to what he learnt in Brazil was Netherlands Bank in Durban (1961) where the whole structure is enveloped by a superbly conceived suspended, glazed terracotta sun-screen echoing Brazilian cobogós or Indian Jaalis. Also in Durban, Izzy Benjamin created spectacularly lively, Brazilian inspired apartments and hotels.⁴² Much of this inventive building occurred before the mid-1950s 'How to build in the Tropics' reports and manuals descended from the Northern Hemisphere with its remote and authoritative 'Building Science'. Inspired by Brazil, whatever their failings, South African architects had wider agendas to honour, most beyond the reach of reductive techno-scientific and formulaic solutions.⁴³

44. Udu Kultermann, *New Directions in African Architecture*, London: Studio Vista, 1969, 97-114

Elsewhere in Africa, environmental control in modern buildings embraced values that resonated with their locations. Architects who had chosen to live and practice in Africa rather than fly in and fly out, included Pancho Guedes in Mozambique, Amyas Connell and Ernst May in Kenya, Anthony Almeida in Tanzania, Julian Elliott in Zambia and in partnership with Philippe Charbonnier in Congo/Zaire.⁴⁴ These and others adapted to local circumstances, available skills and social circumstances. Some strove to honour local cultures in their work while being in touch with architectural developments elsewhere in Africa and further afield.

In 1955 MoMA hosted Henry Russell Hitchcock's *Latin American Architecture since 1945*, finding exemplary buildings holding their own against those in the USA and Europe. Young architects in those countries had built prodigiously, with confidence and verve while Europe was still recovering from WWII and the USA was feeling its way into modern architecture:

45. HRH, [Introduction], *Latin American Architecture since 1945*, New York: MoMA, 1955, 29

The original publication, now out of print, can be downloaded from the MoMA site: <https://www.moma.org/calendar/exhibitions/2436>

Architecture is still very much an art in Latin America. The articulate elements in the community ... expect more from architects than purely "functional" solutions. Public authorities in particular clearly turn to architecture as a principal expression of cultural ambition.⁴⁵

A year later, Henrique Mindlin published his comprehensively illustrated, *Modern Architecture in Brazil*, with a laudatory preface by Siegfried Giedion:

46. Sigfried Giedion, 'Brazil in Contemporary Architecture', in: Henrique Mindlin, *Modern Architecture in Brazil*, Rio/Amsterdam: Colibris, 1956, IX.

It is a good sign for our civilization that it is spreading from more than one center. Creative work suddenly appears in countries which in earlier periods would have remained provincial. Finland and Brazil: how is it possible that these countries that have been lying for such a long time on the outskirts of civilization show such a high architectural standard? ... No doubt, without creative architects there can be no creative work ... What is lacking in many other countries, however, is the financial support and the clients, governments and administrations which do not hamper real talent.⁴⁶

However, when Giedion updated *Space, Time and Architecture* in 1962, he ignored Brazil, in contrast to his effusive promotion of Alvar Aalto whose work took on the role of humanizing modern architecture while somehow blending with orthodoxy.

47. Report on Brazil – 'Max Bill', *AR*, vol. vol.1 116, 1954, 238.

For those who felt empowered to pronounce on what was acceptable in modern design, perhaps Max Bill's intervention in São Paulo in 1953 captures the spirit of Europe's attempt to reassert its dominance of modern architecture's trajectory: 'Today most [Brazilian] applications of Free-form shapes are purely decorative. As such they have nothing to do with serious architecture...'⁴⁷ Bill asserted that Brazilian architects had subverted the function of the brise-soleil along with pilotis by applying them indiscriminately as decorative elements. He excoriated Brazilian architects for striving for effect and 'self-expression', straying from Architecture by avoiding their responsibilities as practitioners of a social art.

48. Sigfried Giedion, '...New Monumentality...'; in: Paul Zucker, *New Architecture and City Planning*, New York: Philosophical Library, 1944, 549-568.

Nevertheless, Brazil's next surge onto the stage of world architecture was with Brasilia, rising to the occasion by providing some answers to Giedion's 1944 perceived deficit in Modern Architecture of 'Monumentality'.⁴⁸ Lucio Costa contributed confidently to the debate that followed:

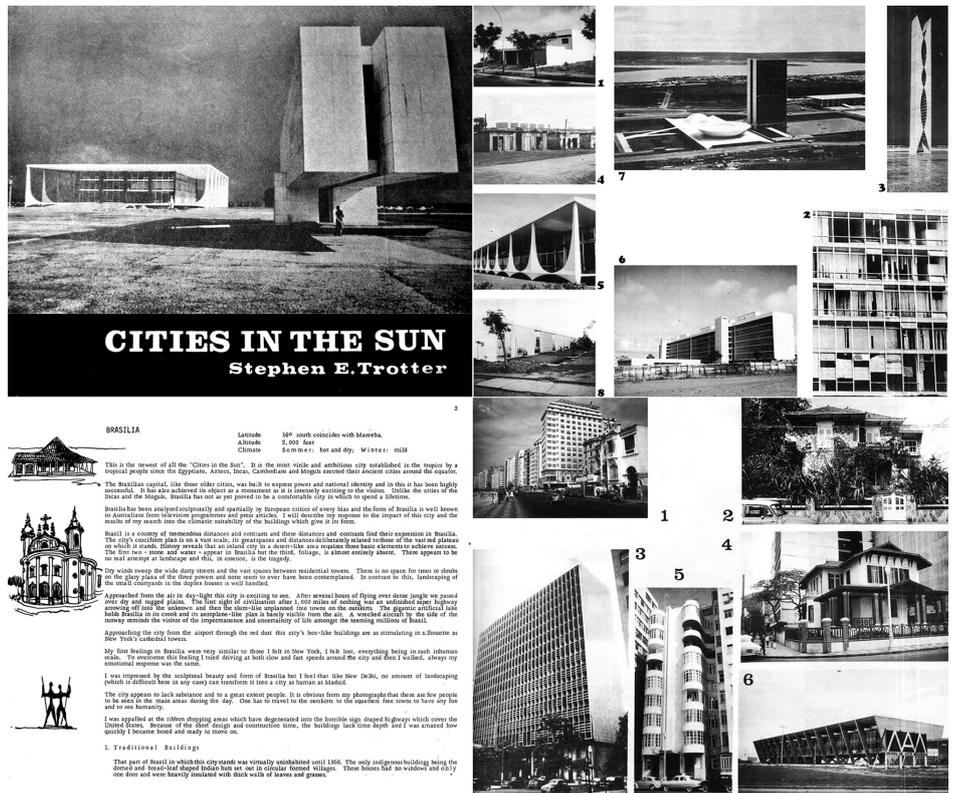
From the moment architects ... apply themselves ... to the study of the problems of architectural expression, ... becoming imbued with a passion to conceive, to plan and to build - from this moment, their wholly functional works will respond to the higher

49. Lucio Costa, 'In search of a new monumentality', *AR*, vol.104, 1948, 127.

purpose animating them and will express themselves in appropriate plastic terms, acquiring ... a noble and dignified grace. Architects will then have unconsciously attained monumentality.⁴⁹

50. Hugo Segawa, *Architecture of Brazil, 1900-1990*, Heidelberg: Springer, 2013.

Between 1936 and 1960, Brazilian architects not only extended the language of Modern Architecture to include practical methods for dealing with warm climates, they also addressed issues of identity and approaches to monumentality that helped colleagues in Africa and elsewhere find pathways to local relevance in their work.⁵⁰



Figures 4: Cover and a selection of pages about Brazil in Stephen Trotter's *Cities in the Sun* report. By 1963, parts of Brasilia were newly built. In this phase of Brazilian modern architecture, Oscar Niemeyer and others developed an approach to monumental representative buildings, enhanced by Lucio Costa's overall plan. Brasilia was all new, including the favelas which sprang up as the city was being built – photograph 4 in the mosaic top right. On the bottom row, Trotter, like Bierman looks at buildings from various epochs. Both were seeking to understand the architecture of Brazil and other places as part of a cultural continuum. By kind permission of Paul Trotter.