

How Brazil's Modern Architecture Revolution impacted Europe and Africa

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Ana Cristina Dos Santos Tostões was born in 1959 in Lisbon where she lives. She is an architect (ESBAL, 1982), architecture historian (UNL, 1994) and chair of DOCOMOMO International. She has been coordinating the master's degree in architecture (2007-2009) and she is the architecture focus area IST- École Polytechnique de Lausanne (EPFL) Phd program responsible.

Her research field is the history of architecture and the city of the twentieth century, in which she develops an operative view oriented towards the conservation of modern architecture, focusing especially on post-war architectural culture and relations between Iberian, African and American modernity.

On these topics she has published books and scientific articles and organised exhibitions: *Portugal: Architektur im 20. Jahrhundert* (Deutsche Architektur Museum, Frankfurt, 1997); *Keil do Amaral, o arquiteto e o humanista* (1999); *Arquitetura Moderna Portuguesa 1920-1970, um património para conhecer e salvar* (Oporto, Lisbon, Évora, Coimbra, 2001-2004); *Arquitetura e Cidadania. Atelier Nuno Teotónio Pereira* (2004); *Biblioteca Nacional.Exterior/Interior* (2004); *Gulbenkian Headquarters and Museum, The architecture of the 60s* (2006); *Lisboa 1758: The Baixa Plan Today* (2008).

She has participated in several scientific conferences and given lectures in European, American and African universities. She has formed part of juries and scientific committees and has been invited as an expert to several awards. She is a member of ICOMOS for the modern heritage, formed part of the Advisory Council for IPPAR (Instituto Português do Património Arquitectónico) and was scientific assessor of IPPAR for the Inventário da Arquitectura do Movimento Moderno, on which she worked in collaboration with Iberian DOCOMOMO.

She was member of the Scientific Committee at the fifth Iberian DOCOMOMO Congress (2005), was scientific coordinator of the "IAPXX-Survey of 20th Century Architecture in Portugal" (2004-2006), has contributed as an architecture critic to the *Jornal Público*, was vice-president of the Portuguese section of AICA (the International Association of Art Critics) and is currently vice-president of the Ordem dos Arquitectos. In 2006 the President of the Portuguese Republic awarded her the honorary title of Commander of the Ordem do Infante D. Henrique in recognition of her contribution to the dissemination of knowledge about architecture.

ABSTRACT

After WWII, magazines turned to fundamental sources for the dissemination of the modern avant-garde project. In this context, the discovery of modern Brazilian architecture through the media by the younger generation of Portuguese architects had enormous consequences for architectural culture. In fact, this modern Brazilian expression became a sign of hope and of future possibilities for the Portuguese architects who used it as a reference to heroically combat the Estado Novo's regime of censorship. This essay analyses how this information was received and articulated, and how it became an anchor for modern creation in Portugal and its colonies in Angola and Mozambique.

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Within the framework of "Os Verdes Anos na Arquitectura Portuguesa"¹ the discovery of this *Brazilian energy, through the publication of Brazil Builds, Architecture New and Old: 1652-1942*² fed a media explosion, with magazines around the world publishing Brazilian architecture. It is argued here, that this influence led to the maturity of Portuguese architecture, which is to say, its ability to produce modern work with conviction and without prejudice. In other words, to build modernity without forgetting their roots, tradition and history.

After an ephemeral modernism fuelled throughout the 1920s - by the French magazines such as *L'Architecture Vivante* affirming the influence of Auguste Perret, by the German *Baumeister* or *Bauwelt*, by the Italian *Architettura* or *Casabella*, and from 1932 on by the very important *L'Architecture d'Aujourd'hui* - from 1938 to the end of the war, Portugal went through its hardest period of the fascism. This was marked in 1941 by an exhibition at the National Society of Fine Arts entitled *Neue Deutsches Architektur*, significantly translated as "Modern German Architecture". Presented as an official advertising initiative by Nazi Germany, it brought together models, photographs and drawings of work built and designed for the Third Reich. Honoured by the presence of Germany's General Building Inspector of the Reich, architect Albert Speer (1905-1981), the exhibition had huge repercussions and prompted Cristino da Silva (1897-1976) to distance himself from the modernism he had practiced in the previous ten years and affirm to his students "that this would be architecture in the future, and not that of the Modern Movement, which they insisted on following." Despite the alignment of the Sindicato Nacional dos Arquitectos (National Union of Architects) with the Estado Novo regime, expressed through its magazine *Arquitectos*, it is essential to note the shift that occurred just the next year, following the changing winds of war. In fact, in 1942 the magazine *Arquitectos* devoted a monographic edition to architectural production in the United Kingdom, anticipating the victory of the Allies, and the initial circumstances of the postwar period, characterized by the victory of democracy and the discovery of modern Brazilian architecture. In the dissemination of this new architecture of freedom, the 1943 MOMA New York edition of the publication *Brazil Builds, Architecture New and Old: 1652-1942* was of decisive importance.

Resistance during the war and Post-War liberation

In a situation of ideological and structural resistance, a third way was developed with a different approach to tradition and the question of identity, laying the foundations for the development of a critical reflection on regionalism. Keil do Amaral (1910-1976) is the author of reference with his work and writings³ (*A arquitectura e a Vida*. 1942; *A Moderna arquitectura*

1. Ana Tostões, *Os verdes Anos na Arquitectura Portuguesa dos Anos 50* (Porto: Faculdade de Arquitectura, 1997).

2. Philip Goodwin, *Brazil Builds* (New York: MOMA, 1943). (Cf. accounts collected by the author from the architects Nuno Teotónio Pereira and Fernando Távora, also confirmed in "Entrevista a Maurício de Vasconcelos", *Arquitettura*, no. 123 (September-October 1971). It is a heavily illustrated volume that first analyses the historical evolution of Brazilian architecture and, in a second part, presents a large selection of built Modern Architecture, organized by use, from collective and social housing, to schools, hospitals, libraries, airports, churches and single-family houses.)

3. Francisco Keil do Amaral, *A Arquitectura e a Vida* (Lisbon: Edições Cosmos, 1942). Published in the collection "Universidade Aberta", edited by Bento de Jesus Caraça, which reflected the desire to frame various disciplines in life and daily life, a concept inspired by the neo-realist movement. It was connected to a generation of intellectuals whose theoretical manifestos were connected to Neo-Realism and the polemics by which it defined itself, and began in the mid-1930s in magazines such as *O Diabo* (1934-1940), i.g. Fernando Piteira Santos, "A literatura e a Vida", *O Diabo*, 5 August 1939.

Holandesa, 1943), along with Fernando Távora (1923-2006) who in 1947 published the essay *O Problema da Casa Portuguesa* ⁴.

History was about to be rescued by modern values. In *Uma Iniciativa Necessária*⁵, 1947, Keil proposed undertaking the work that Lúcio Costa had already carried out in Brazil, a task that would be accomplished in the following decade with the militant commitment of modern architects in their search for Portuguese regional architecture. The relationship with the article "*Documentação Necessária*" written by Lúcio Costa ten years earlier is evident, as can be seen in the reference he himself made to it in the 1995 re-publication (*Lúcio Costa: registro de uma vivência*): "Professor Carlos Ramos of the University of Porto stated that the book *Arquitetura Popular em Portugal* was born from this article"⁶.

In the meantime, *Brazil Builds, Architecture New and Old 1652-1942*, revealed to the world two hitherto unknown aspects: the richness of Plain Portuguese Architecture⁷ and the great vitality of modern work, built from the 1930s onwards. This excellently documented bilingual edition had huge repercussions among Portuguese architects and was considered a treasure by those who owned it. This was how Portuguese architects learned about the rich heritage of colonial Brazil and, at the same time, the flourishing of the Modern Movement the country had experienced.

Discovering buildings such as those of the Ministry of Health and Education (*Ministério da Educação e Saúde - MES*), the AIB Headquarters (*Sede da Associação Brasileira de Imprensa*), the Ouro Preto Hotel or the Pampulha complex in Belo Horizonte, created a huge sensation. Victor Palla (1922-2009) wrote: "Our Brazilian children have better interpreted the voice of this past and the world has returned to those who build examples of young and irrepressible strength and sharpness."⁸

That is why we can say that the postwar situation reflected the modern rupture. It was a time when the regime was challenged in the context of the First National Congress of Architecture (1948), when young architects began to demand the adoption of the principles of Modern Movement Architecture and the importance of a functionalist response to the housing programme. Benefiting from an atmosphere of strong democratic politicization, the ideological component, the third operative vector of the Modern Movement, was finally included in Portugal. Indeed, the developmental period that characterized the first half of the 1950s⁹ triggered the production of new work that was to justify the resurrection of the magazine *A Arquitetura portuguesa*¹⁰ that later emerged, under the direction of Vitor Palla from 1952. It became a space for the most radical avant-garde of the International Style under Brazilian influence, and was also marked by its careful graphic design, adopting the formal canons characteristic of the taste of the early 1950s. It presented the most recent projects built by the youngest architects, while emphasizing Modern Latin American archi-

4. Fernando Távora, "O Problema da Casa Portuguesa", in *Cadernos de Arquitectura*, 1 (Lisbon 1947). This was a revised and enlarged version of an article with the same title, published by the author in the Magazine *Aleo* on November 10, 1945.

5. Keil do Amaral, "Uma Iniciativa Necessária", *Arquitetura*, no. 14, (April 1947).

6. Ana Tostões, *A Idade Maior* (Porto: FAUP Publicações 2014).

7. Cf. George Kubler, *Portuguese Plain Architecture, Between Spices and Diamonds* (Middletown: Wesleyan University Press, 1972).

8. Victor Palla, "Lugar da Tradição", *Arquitetura*, no. 28 (January 1949).

9. Considering that "o período que vai de 1949 a 1958 é a época de Ouro do Estado Novo, tão poucos problemas sérios teve de defrontar e tantos êxitos, embora relativos, conseguiu concretizar no domínio do desenvolvimento económico e social ["the period from 1949 to 1958 was the golden age of the Estado Novo, with so few serious problems to face, and so many successes, even if relative, in the area of economic and social development." cf. César de Oliveira - "A aparente quietude dos anos 50", in *Portugal Contemporâneo*, op.cit., p 75.

10. In March-April 1952, in the year XLV, the 4th series of the magazine "A Arquitetura Portuguesa" began, and continued for 12 important issues until October 1957.

ecture with two editions dedicated to modern Colombian architecture. The magazine *A Arquitetura*, whose ethical aspect was more sensitive to the Mexican problematic, focused on the architect's social position, and published designs and theoretical articles on the most recent and brilliant achievements of this Central American country. But, in reality, the strongest influences that manifested themselves were primarily from Brazil. Indeed, the first significant date of the new Brazilian architecture was 1942 when, following a competition in 1935, Niemeyer, Lúcio Costa and Reidy concluded the Ministry of Education Building for which Le Corbusier had been invited as a consultant.¹¹

The consolidation of modern Brazilian architecture, discovered through the book *Brazil Builds*, stimulated contestation and the struggle for modern architecture. In 1949 the Instituto Superior Técnico received an exhibition of Brazilian architecture accompanied by a conference by Wladimir Alves de Sousa. Presenting about 85 works, it was greeted with enthusiasm by the young Formozinho Sanchez (1922-), as a "lesson" on the "perfect notion of the union of structural principle with aesthetic balance".¹² Four years later the "Exhibition of Contemporary Brazilian Architecture" was hosted by the Sindicato Nacional dos Arquitectos (National Union of Architects), as one of the activities of the Third UIA Congress. It celebrated the teaching of Lúcio Costa, a proponent, since the 1920s, of the Bauhaus and primarily the ideas of Corbusier, and "showing the fruits on the other side of the Atlantic of the radiance of European culture as a new branch of that immense and venerable tree of Western culture. Architecture thus remains once again in the history of mankind, as the material testimony of a civilization, like a book of stone - today written in concrete and glass - which includes the institutions of a people, their spiritual and material life, their conception of the world and their ideals"¹³.

A modern lab: modern architecture in Angola and Mozambique

The Portuguese colonies in Africa, Angola and Mozambique, extensive territories in sub-Saharan Africa, witnessed significant developments between the end of World War II and the Portuguese democratic revolution of 24 April 1974, which led to the political independence of these two African countries the following year. This development took place¹⁴ against a backdrop of colonial assertion carried out by the fascist Portuguese regime.

A Modern Diaspora arose in these territories where a debate took place and the architectonic models reproduced underwent metamorphoses due to their overseas geography.

This architectonic production was affiliated to the codes of the Modern Movement, and was designed and built in the cities of Angola and Mozambique from the beginning of the 1950s. Notable for the moder-

11. José-Augusto França, *História da Arte Ocidental* (Lisboa: Livros Horizonte, 2006), 294.

12. *Arquitetura*, no. 29 (February-March 1949):17.

13. Cf. conference by Professor Wladimir Alves de Sousa held in the S.N.B.A. as part of the activities of the 1953 exhibition, in "Exposição de Arquitectura Contemporânea Brasileira", *Arquitetura*, no. 53 (November-December 1954): 22.

14. The postwar period was also a challenging time for the political regime. The *Estado Novo* survived the war politically, but the defeat of fascism meant a very different social, economic and political situation from that of the 1930s, exposing it to its first serious global crisis, in which, to a certain extent, the question of power was raised for the opposition. Cf. Tostões, *Cultura e Tecnologia na Arquitectura Moderna Portuguesa*, 368. At this turning point in the conquest of both freedom of expression for architects, and space to assert the inevitability of modern architecture, architects promoted industrialization and its use in solving the housing problem, without constraints or obligatory styles. They demanded intervention not at the scale of the isolated building, but at the scale of the city. They quoted Le Corbusier and the utopia of his *Ville Radieuse* and, recurrently, the Athens Charter as an urban dogma on which to base the urgent new urban and architectural rationality, in the sense of a manifest and orthodox attitude, cf. Tostões, *Cultura e Tecnologia na Arquitectura Moderna Portuguesa*, 369. The holding of the First National Congress of Architecture in May 1948 in Lisbon had the greatest impact on the affirmation of modern architecture in Portugal. It was an event with major implications for the understanding of architectural production in the 1950s that must be considered in the context of the cultural agitation that followed the end of the war, cf. Tostões, *Os Verdes Anos na Arquitectura Portuguesa*.

nity of its social, urban and architectural programmes, and also for its sustained formal and technological research, in the international context, it constitutes a distinctive heritage characterising the modern architecture of these young countries.

In fact, before World War II, colonial buildings in sub-Saharan Africa reflected a variety of influences. Modern Movement ideas had influenced the so called Transvaal Group in South Africa, led by Rex Martienssen (1905-1942) and his colleagues John Fassler (1910-1971), Gordon McIntosh (1864-1926) and Bernard Cooke (1910-2011). All of them were followers of Geoffrey Eastcott Pearse (1885-1968) and were influenced by the ideas of Le Corbusier (1887-1965), and by the international objectives of the Modern Movement based on purist forms and technological language, and seeking to transcend local and regional identities. Rex Martienssen became editor of the *South African Architectural Record* magazine in 1932, achieving widespread dissemination of the Modern project up to the 1940s, and producing a significant amount of work with his group. This spread of information even extended to Portugal, where the Martienssen House, in Greenside (1939-1940), was published in the magazine *Arquitectura*¹⁵.

15. "Casa na África do Sul", *Arquitectura* no. 30 (1949). Also Ana Tostões (coord.), *Fundação Calouste Gulbenkian*, Lisbon, 2006.

The Modern Movement was introduced on a large scale in Portuguese-speaking Africa after the end of the World War II. This modernist cycle took place in a context of hotly-contested international politics, starting with the creation of the United Nations in 1945, strengthening with the outbreak of the Colonial War (1961-1974), and the late industrialisation of the country and its colonies. After World War II, the orientation of Portuguese colonial policy is best understood by taking into account the intense pressure placed on it by the United Nations. As Udo Kultermann (1927-2013) stated: "the events following the War and especially the foundation of the United Nations in 1945, had intense reverberations on the changing status in several parts of Africa. Among those who were advocating greater freedom were Kwame Nkrumah in Ghana, Leopold Sedar Senghor in Senegal and Julius Nyerere in East Africa. But it was the declaration of the United Nations and the subsequent ideology of the Cold War which had the strongest impact on the long-awaited independence of African states from their colonial rulers. Independence was achieved by Libya in 1952, Ghana in 1957, and in rapid succession several other African states, such as Ivory Coast, Central African Republic, Nigeria, Congo, Gabon, Dahomey, Niger, Mauritania and Senegal all achieved their independence in 1960, a highly significant year for Africa in general"¹⁶. Trying to assuage this criticism, in the 1950s the Portuguese dictatorship sought to create the idea of a Lusitanian identity, specifically using the term *Luso-tropicalism*, coined by Gilberto Freyre (1900-1987), the renowned Brazilian sociologist.

16. Udo Kultermann and Kenneth Frampton, *World Architecture 1900-2000: Central and Southern Africa* (Cham: Springer, 2000), 23.

In Portuguese colonies, a focus on infrastructure was accompanied by a *modern* expression, which was reinvigorated by the Brazilian influence after the publication of *Brazil Builds* (1943) and the widespread diffusion of South American work¹⁷. Throughout the 1950s, many architects who strongly believed in the transformative capacity of architecture, travelled to the African colonies where architectural expression was freer than that practiced in the Portuguese metropolis. African geographical and climatic conditions also generated different variations of the modern vocabulary, which acquired new scales and expressions¹⁸. The further away these territories were from the direct influence of central power, the more receptive they proved to be to modernisation. In a seemingly less restrictive society, architects found it was possible to build based on the universality of *modern* ideas.

This period was an extraordinary challenge to the "African generation"¹⁹, who not only had the opportunity to work according to a language based on progress, equality and universal modernity, but were also involved in large-scale commissions. Encouraged by the vastness of the African landscape, these architects were also able to believe that they were building a new place, a new world that would fulfil purposes demanded of it by the contemporary world. In the adventure of design and construction, they believed they could create a *modern utopia* in Africa.

Living in an atmosphere of architectural freedom and possibility, as John Godwin recognized, these were the years when "Africa was a paradise for architects"²⁰. In fact, the ideals of the Modern Movement spread through the media were even stronger, as if architects were working in Africa as "good missionaries"²¹, not only to support colonial welfare but, in many cases, to support the new independent nations in the name of human progress and justice.

It is important to understand this output within the African context, as part of a broader process of transformation, and analyse this desire and ability to work under sincere and progressive guidance by implementing pioneering work with strong social and urban significance, within a two-fold colonizing framework of politics and architecture. As Udo Kultermann argues, modern architecture is always a colonizing action, which may explain the scant space given to African culture in this picture of uniformity. John Lagae believes that "in the line of Eurocentrist thought that viewed Africa as a continent without history, the whole debate on building in the Belgian colony was directed by the argument that the Congo lacked a proper architectural tradition, it was seen as an architectural *terre vierge*"²².

Universal civilization versus local culture

Within the context of Europe's reconstruction after World War II, Modern Movement architecture was adopted on a global scale together with

17. Philip Godwin and Kidder Smith, *Brazil Builds, Architecture Old and New* (New York: MoMA, 1943). Then followed by monographs on the same subject: *L'architecture d'Aujourd'hui*, no. 13-14 (September 1947); *L'architecture d'Aujourd'hui*, 42-no. 43 (August 1952). In Portugal: Vítor Palla, "Lugar da tradição", *Arquitectura*, no. 28 (April 1949); "Arquitectura Moderna Brasileira (Exposição no IST)", *Arquitectura*, no. 29 (February-March 1949); Rino Levi, "A Arquitectura é uma Arte e uma Ciência", *Arquitectura*, no. 36 (November 1950); Oscar Niemeyer, "Bloco de Habitações na Praia da Gávea", *Arquitectura*, no. 41 (March 1952); "I Bienal de S. Paulo-Exposição Internacional de Arquitectura", *Arquitectura*, no. 41 (March 1952); Lúcio Costa, "O Arquitecto e a Sociedade Contemporânea", *Arquitectura*, no. 47 (June 1953); "O pintor Burle Marx e os seus Jardins", *Arquitectura*, no. 52 (February-March 1954); "Exposição de Arquitectura Contemporânea Brasileira", *Arquitectura*, no. 53 (November-December 1954); Silvío de Vasconcelos, "Arquitectura Brasileira Contemporânea", *Arquitectura*, no. 88 (May-June 1965). Also on magazine *Técnica* by Associação de Estudantes do Instituto Superior Técnico: Aníbal S.A. Vieira, "Brasília, Cidade Modelo", *Técnica*, no. 287 (December 1958). And, later on, on several editions of *Binário*: Luís Boróbio, "Arquitectura da América entre Câncer e Capricórnio", *Binário*, no. 12 (September 1959); Lúcio Costa, "Brasília, Capital do Futuro", *Binário* (número monográfico dedicado a Brasília), no. 22 (July 1960); "50 Anos de Arquitectura Brasileira", *Binário*, no. 62 (March 1972).

18. Tostões, *Os Verdes Anos na Arquitectura Portuguesa*.

19. José Manuel Fernandes, *Geração Africana. Arquitectura e cidades em Angola e Moçambique, 1925-1975* (Lisbon: Livros Horizonte, 2002).

20. John Godwin, "Architecture and Construction Technology in West Africa", *Docomomo Journal - Modern Heritage in Africa* (2005).

21. Antoni Folkers and Belinda A. C. van Buiten, *Modern Architecture in Africa* (Cham: Springer, 2019), 163.

22. John Lagae, "Modern Architecture in Belgian Congo", *Docomomo Journal - Modern Heritage in Africa* (2005): 48.

a repeatable systemic programme linked to industrialization. With the *International Style*²³, a trivialized and uniform expression was pursued which limited it to an architecture of bureaucracy and trends, leaving little space for creative invention or to respond to the diversity of its location. At this point, Bruno Zevi defined a second moment of the Modern Movement, the post-war crisis accompanying the CIAM (International Congresses of Modern Architecture), and championed organicism, which paved the way for Nordic empiricism, neo-liberty in Italy, and critical regionalism in Portugal and other less-industrialized southern countries.

In 1940 Alvar Aalto (1898-1976) claimed the humanization of architecture²⁴. Five years later Bruno Zevi restored the importance of Frank Lloyd Wright (1867-1959) and the values of an organic architecture against the rationalist Bauhaus of Walter Gropius (1883-1969) and the purist formalism of Le Corbusier²⁵. The CIAM opened up the debate, giving rise to Team 10 and the sustained criticism of Ernesto Rogers (1909-1969)²⁶, who exposed this contradiction and sought to relate the content of an art form with social facts and history²⁷. In 1957, in an editorial in the Italian magazine *Casabella*, he posed the paradigmatic question for modern architecture: "Crisis or Continuity?". The derivatives of the International Style revealed the possibility of pluralism and of successfully living with tradition and history, and in this context a critical realism that resisted the perpetuation of formalist values began to be outlined.

In 1955, the *Portuguese Regional Architecture Survey* became the hinge between these two worlds in which abstract rationalism was seen realistically in the vernacular, in an attempt to overcome the dichotomy of local versus global, and so recognize the past, history and tradition from the same critical point of view that had been reached in the scholarship of that time. That is, the recovery of the Modern Movement in which, after reaching the point of confusing technical and artistic expression, would now no longer be seen as a way of characterising the contemporary world through the use of pre-built forms and materials, but as a method to achieve formal exaltation through the synthetic expression of the useful and beautiful.

In the same year Paul Ricoeur (1913-2005) critically analysed the growing phenomenon of universality, considering it as the advance and subtle destruction, not only of traditional cultures, but also the creative heart of major cultures, and questioned whether the direction of modernisation entailed abandoning the "boat" of past culture that had been a nation's *raison d'être*²⁸. According to Ricoeur, humanity had entered a single planetary civilization representing gigantic progress for everyone and an overwhelming task of survival and adaptation of cultural heritage in this new context: "We all resent, to different degrees and in varying ways, the tension between, on one hand, the need for access to this progress and, on the other hand, the need to preserve our inherited heritage [in that]

23. Henry-Russel Hitchcock and Philip Johnson, *International Style: Architecture since 1922* (New York: Norton & Company, 1995).

24. Alvar Aalto, "A Humanização da Arquitectura", *Arquitectura*, no 35 (1950).

25. Bruno Zevi, *Verso un'architettura organica* (Torino: Einaudi, 1945).

26. Particularly editorials in *Casabella* magazine, reaching one of the highest peaks in the development of the Modern Movement. Ernesto Nathan Rogers, *Esperienza dell'Architettura* (Milano: Skira, 1997).

27. What justifies the plethora of Italian historians, especially the development of their capacity for an independent and unprejudiced outlook that finds its key in Bruno Zevi, especially in its initial reflection? Croatian Aesthetics opened a path to synthesis which was continued by Lionell Venturi and Edoardo Persico, reworked by Giulio Carlo Argan and Ernesto Nathan Rogers, and later by both Aldo Rossi and Manfredo Tafuri.

28. Paul Ricoeur, *Histoire et Vérité* (Paris: Le Seuil, 1955).

we suffer the pressure of the two different, but equally compelling, needs. How to characterize this universal world civilization?²⁹. Considering the contradictory character of this development, he considered that the conflict arose from the fact that this single world civilization produced, at the same time, a kind of erosion on the cultural basis that had sustained the great civilizations of the past. For him, this threat was translated into, among other disturbing effects, the diffusion of a weak civilization, the decisional counterpart of an elementary culture³⁰, as if mankind, massively accessing a mass consumer culture, were to be held at the mass culture level. Thus, formulating the crucial problem presented to developing peoples: whether joining the path of modernization necessitates leaving the old cultural past which was the reason for a people's existence?

In a colonized Africa the problem often took the form of a dilemma and a vicious cycle in that liberation struggles against colonial powers could only be conducted by claiming one particular scenario, because this fight was not only motivated by economic exploitation but moreover, by a desire to replace the colonial culture created by the colonial period.

Paul Ricoeur considered that it was necessary to rediscover this deep cultural personality rooted in the past in order to feed national demands, and that it was precisely at this point that the paradox would arise: how to modernize and simultaneously return to the source, to the origin? It is necessary to seek roots in the past to rebuild a national soul and raise this claim in the face of the spiritual and cultural personality of the colonizer, but, to enter the modern civilization, it is necessary to simultaneously adopt scientific rationality, embracing a strategy which often requires the pure and simple abandonment of an entire cultural past.

Interestingly, this same paradox is encountered by industrialised nations that long ago built their political independence around a former political power. In fact, the encounter with the other cultural traditions is a serious test, and a completely new direction for European culture. The fact that a universal civilization has been sustained for such a long time within Europe has led to the illusion that European culture was, in fact and in law, a universal culture. The advance obtained over other civilizations seemed to provide experimental verification of this postulate, the meeting of other cultural traditions was itself the result of this breakthrough, and more generally the fruit of Western science. Was it not Europe that in the 19th century invented the disciplines of history, geography, ethnography and sociology under their precisely expressed scientific forma when "sharing" Africa?³¹

In the early 1960s, Udo Kultermann signalled that Africa was beginning to develop itself under new laws, and that the world came to look at the "dark" continent with fresh eyes. If the investigations of Leo Frobenius helped to understand ancient African culture, it was now time to look for

29. Ricoeur, *Histoire et Vérité*.

30. "It is everywhere, across the world, the same bad movie, the same shilling machines, the same horrors of plastic or aluminum, the same twisting of language by propaganda, etc." cf. Ricoeur, *Histoire et Vérité*.

31. Kenneth Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance" in, *La Posmodernidad*, ed. Hal Foster (Barcelona: Kairós, 1983).

a new culture being born. Africa's great year of 1960, brought not only political separation, but the following decade indicated it was able to achieve surprising results for the first time. In one work Kultermann listed the new modern *Neues Bauen* buildings spread throughout Africa, and grouped them into ordered sets³². He argued that architecture in Africa was part of a tradition of thousands of years that had entered a completely new phase. In 1963, his book was intended to prove the existence of an African architecture, an idea hitherto denied. He considered that only an architectural concept open to experimentation with constructive methods could have accomplished what African architecture had, which was slight, variable and perennial.

European and American architecture of the twentieth century followed a surprising path, with analogies to African architecture, and that the general characteristics of Africa reflect certain concepts of modern civilization, such as the overcoming of the difference between artistic creation and reproduction in works art, between the beautiful and the useful, as well as the distinction between a work of art and one that follows a strict artistic procedure³³. It is important to consider the relation between man and nature and he notes that "construct, in Africa, means to create a centre of crystallization for human relationships"³⁴. Furthermore, insisting on the local factor, he states that "when the architecture in tropical countries is analysed, several characteristics must be taken into account: extensive information on temperature, humidity, class and wind direction, and the movement of the sun and vegetation type should be carefully studied if we wish the construction to be usable." So he dared to argue that it is not always easy to properly satisfy the requirements for certain construction, from the drawing board of an architect's office in Europe. He was sure that there is no generic solution and, for each case, one must find the most appropriate answer. In developing new solutions he made sure to adopt the principle of cross-ventilation. For him the key was to balance the architectural elements based on the levels of humidity and solar radiation and protect those elements permeable to the passage of air. Thus, the architectural structure was the result of constructive components that provide shade and wall openings for air circulation. But the question it is not to mechanically align these elements, because the art of building involves space and volume, with light, movement and harmony.

When critical regionalism began to be widely discussed in the early 1980s, there was a return to thinking that had emerged soon after WWII: the search for identity and authenticity was understood as a paradigm in the evolution of post-colonial societies. This conflict and this dilemma, both common in developing nations, as Ricoeur describes, must assume a role in re-examining the architecture designed within the framework of Portuguese colonization in Africa in the three decades before the independence of Angola and Mozambique. Further work is needed on

32. Udo Kultermann, *Neues Bauen in Afrika* (Berlin: Wasmuth, 1963).

33. Kultermann, *Neues Bauen in Afrika*, IX.

34. Kultermann, *Neues Bauen in Afrika*, VIII.

the question of authenticity as a criterion appropriate for establishing a national spirit and sense of identity, and on formulating the concept of tropicalism and the transcultural theme.

Tropicalism and transculturalism

Thinking on transculturality frequently arose in association with the key role of climate and its influence on ways of life, in the formation of cultural identity, and in shaping architecture. On the 1920s the Mexican writer, philosopher and politician José de Vasconcelos (1882-1959) introduced the idea of "miscegenation" bucking the dominant racist thinking of the time and valuing the tropical climate as a promoter of the interaction between different people that can lead to a "synthesized race"³⁵. In his book, *A Raça Cosmica, Missão da Raça Ibero-Americana*, Vasconcelos defends that, through the combination of human races – white (colonizers), black (slaves imported from Africa) and yellow or red skins (natives) – the two nations of Iberia (Portugal and Spain) had created in Central and South America the first synthesized human race with the power to transform the world. Eight years later, the Brazilian sociologist Gilberto Freyre identified "tropicalism" as a social theory and Brazil as the major transcultural nation³⁶. Gilberto Freyre believed that the climate factor played a decisive role in what he designated as successful colonization. He considered that the Portuguese were predisposed to conduct processes of miscegenation with blacks and Indians, and still more decisively, to develop a culture of hybridization in Brazil, thanks to specific historical and geographical conditions. Gilberto Freyre argued that the proximity of Portugal to the northern coast of Africa promoted determinant cultural exchanges with the Moors, in addition to the fact that the Portuguese had the opportunity to share a similar climate and experience living in the tropics through their travels to Africa and India even before the colonization of Brazil. In his writings, namely in *Casa Grande e Sanzala* (1933), he identifies three key themes: miscibility, mobility, climatability. In a word, Gilberto Freyre considered the extreme capability of adaptability, recognizing an analogy between the physical capacities of acclimatization, the mentality of living outside of systems or strict rules and a natural affinity the Portuguese had to cultural miscegenation.

In turn, Sérgio Buarque de Holanda (1902-1982), in *Raízes do Brasil* (1936), published three years after the work of Gilberto Freyre's, and later on in *Visões do Paraíso* (1959), interpreted the process of forming Brazilian society, highlighting the legacy of Portuguese colonization and the dynamics of cultural transfer. Along with the work by Gilberto Freyre and the book *Formação do Brasil Contemporâneo*, by Caio Prado Jr. (1907-1990)³⁷, *Raízes do Brasil* forms part of this trilogy, and focused on the search for a national identity by applying the contrast between work and

35. José Vasconcelos, *La Raza Cósmica – Misión de la raza Iberoamericana*, Barcelona, Agência Mundial de Libreria, 1925. Cf. Octavio Paz, *El Laberinto de la Soledad*, (Madrid: Fondo de Cultura Económica, 1992), 183.

36. Gilberto Freyre, *Casa Grande e Sanzala* (Lisbon: Livros do Brasil, 1957)..

37. Caio Prado Jr., *Formação do Brasil Contemporâneo* (São Paulo: Ed. Brasiliense, 1996).

adventure, rationality and friendliness, private and public, and presented a thesis of the cordial man, due to interbreeding, recognizing the adaptability of the Portuguese settler and other people in this situation to develop an eminently rural, patriarchal society based on slavery. In fact, the attempt to implant European culture in an extensive territory endowed with adverse natural conditions was the predominant and highly consequential fact, which can be identified in the origins of Brazilian society³⁸. The spirit of Portuguese rule prioritised rural life, unlike most other conquering Western nations, which chose the construction of cities as the most decisive instrument of domination. This aspect is important in understanding late African colonization. In Africa, according to Udo Kultermann, the challenge was how the tradition could be accepted as a more natural heritage than a previous one, and how it could be activated by Western, European or American models". Udo Kultermann advocates the "creative continuity of tradition", which at any time is only possible when seen in relation to contemporary needs³⁹. In 1961, regarding the work of Pancho Guedes, Tristan Tzara (1896-1963), said: "one has indeed to come to the end of the world. And for me at least to Africa, to find the most ancient, the most archaic things and also – surprising though it may seem – the most up-to-date, the most extraordinary things – things which were dreamt of 30 or 40 years ago and are now becoming reality on this soil of Africa"⁴⁰.

Modern architectural production in the Portuguese colonies was actually a natural starting point which arose from the assumption of the late architecture of the Modern Movement in all its full⁴¹, metropolitan status, by linking two references that differentiate Portuguese production and clarify the understanding of its distinctive modern process: the almost simultaneous discovery of vernacular architecture when classifying its roots; and the architecture of the Modern Movement as a contrasting process, both discovered on the basis of Brazilian architecture revealed in the book *Brazil Builds*⁴² and the contact of Lucio Costa with Carlos Ramos (1897-1969) and Keil do Amaral (1910-1975).

Towards critic tropicalism: Brazil and the MESP experience

Lefavre and Tzonis argue that tropical architecture was traditionally regarded as the expression of an architecture adapted to the tropical climate⁴³. This school of thought includes the work on colonial and immediate post-colonial period by Otto Koenigsberg (1908-1999), Victor Olgyay (1910-1970), Jane Drew (1911-1996) and Maxwell Fry (1899-1987)⁴⁴. They considered a limited model of narrow spectrum, in which architecture was only seen in technical terms of solar shading and ventilation systems, without looking for broader issues such as the expression of specific values as a consequence of the culture, the place and the

38. Sérgio Buraque de Holanda, "Fronteiras da Europa", in *Raízes do Brasil* (Lisbon: Gradiva, 2000).

39. Udo Kultermann, *New Directions in African Architecture*, (New York: George Braziller, 1969).

40. Tristan Tzara, introduction to Pancho Guedes, "As Coisas Não São o Que Parecem Ser – A Hora Autobiográfica", in *Manifestos, Ensaios, Falas* (Lisbon: Publicações, AO, 2007), 20.

41. Tostões, *Cultura e Tecnologia na Arquitectura Moderna Portuguesa*.

42. Goodwin and Smith, *Brazil Builds*.

43. Alexander Tzonis, Liane Lefavre and Bruno Stagno, *Tropical Architecture: Critical Regionalism in the Age of Globalization* (Chichester: John Wiley & Sons, 2001), 14.

44. Kultermann and Frampton, *World Architecture 1900-2000*.

people. If tropical architecture emerged to respond to the challenge of colonialism and globalization, the truth is that its architects faced a task of sustaining the sense of place and questioning strategies beyond the issue of climate, and embracing wider themes such as tradition, memory, community, technology and sustainability.

The construction of new Brazilian architecture was a distinct moment in the modernization process because, by trying to understand its roots, it exerted a major influence on the production of Portuguese architects in the post-war period in Portugal, and especially in the colonial territories of Angola and Mozambique.

With its definition in the late 1930s and dissemination during the following decade, following the exhibition at MoMA in New York in 1942, and the worldwide reach of its catalogue the next year, Brazilian modern architecture became part of a national strategy of modernization. The affirmation of Brazilian culture was made not only through the thoughts of Gilberto Freyre, Sérgio Buarque de Holanda and Caio Prado Jr., but also in a more visible and recognizable manner through its new architecture, ideologically constructed between the old and new, thus becoming a symbol of national identity.

Lucio Costa (1902-1998) was the leading architect, an opinion-maker and man of action committed to this process, who developed a comprehensive strategy. Lucio Costa wanted to lay the foundations for the creation of a modern Brazilian architecture rooted in its traditional architecture, what he called "colonial architecture" which was no more than "plain Portuguese architecture" as later identified by George Kubler: "Plain Portuguese architecture resists and escapes the usual categories [...] by being freed from the academic rules and Italian forms. The Portuguese plain style is like a vernacular architecture, more related to the dialect of vital traditions than with the great authors of the remote past [...] In Portugal exist unknown elements of a different geography where architectural clarity, order, proportion, are simple and striking, the contours of another aesthetic"⁴⁵. This aesthetic of scarcity referred to by George Kubler is critically understood by Lucio Costa, in recovering memory and history, when he realized that the statement establishing modern Brazilian architecture involved a connection with the constructivist tradition. The creation of a Heritage Institute (SPHAN) in 1937, in which Lucio Costa was the director of the architecture department, arose precisely at the moment when the strategic statement of modern Brazilian architecture emerged⁴⁶. Lucio Costa denounced the dichotomy between past and future as false, and announced a line of investigation focused on researching a history of architecture that was capable of articulating erudite and vernacular solutions in order to unravel the nature of colonial architecture. Part of this research was conducted in Portugal between 1949 and 1954 in a search for the roots of Brazil's architecture, and the observations made with

45. George Kubler, *Portuguese Plain Architecture: Between Spices and Diamonds, 1521-1706* (Middletown: Wesleyan University Press, 1972).

46. Lauro Cavalcanti, "The role of Modernists in the Establishment of Brazilian Cultural Heritage", *Future Anterior*, no. 2, Columbia University, (2009).

Carlos Ramos and Francisco Keil do Amaral, ultimately stimulated the aforementioned survey on Regional Architecture in Portugal⁴⁷.

In “*Documentação Necessária*” (1937) a research programme was presented containing an explicit assumption: to demonstrate the possibility of building a genealogical line between the architecture of the colonial period and modern architecture. The study required that documentation consisted of a systematic analysis of spatial devices in the organization of housing, including its regional variations, systems and processes of construction and forms of occupation⁴⁸. The aim of taking this up to the present, was “to determine” the reasons for the abandonment of such good standards and the origin of [current] clutter⁴⁹.

The plan to restore dignity to the present through the rediscovery and interpretation of a colonial past was no more than this plain lesson of architecture, this functional scholarship, and this “architecture more made to serve than to please”⁵⁰. As he argued, “our old architecture has still not been adequately studied ... popular architecture reveals in Portugal, in our view, more than scholarly interest”⁵¹.

Lucio Costa was a true admirer of modern architecture and particularly Le Corbusier. After briefly being director of the school of architecture of Rio de Janeiro, in 1935 he managed to convince the Minister of Education and Health, Gustavo Capanema (1900-1985) to cancel a competition for the ministry headquarters and to invite Le Corbusier to work on the new project with a group of architects of the new modern generation. The ideas of Le Corbusier had enormous resonance not only among architects, but also with Brazilian intellectuals. In fact, there was a clear affinity between the message of Le Corbusier and the ambitions of intellectuals linked to the Brazilian *New State*⁵². The political and civic strategy of a state of fascist and modernist resonance was to “build the new man,” while the message conveyed by Le Corbusier was embodied in *L'Esprit Nouveau*, and in the modern *Vers une Architecture*⁵³. Regarding the construction of the headquarters of the Ministry of Education and Public Health (MESP), the political and cultural diversity addressed Brazilian concerns for a “high” quality of life identified by health, culture and education⁵⁴.

The MESP building designed and built between 1936 and 1942, under the supervision of Le Corbusier by Lucio Costa’s team⁵⁵, was the vehicle used in this revolution to construct a Brazilian nation, and in the desire to find its own cultural and artistic expression, in a framework combining the wish to achieve a national identity through the ambition of progress and modernization. For the Swiss master who envisioned “the world as a work in progress”⁵⁶, it provided an opportunity to fulfil the desire to build: “It is indispensable to create architectural works, large or small, but significant”⁵⁷.

47. SNA, *Arquitetura Popular em Portugal* (Lisbon: Sindicato Nacional dos Arquitectos, 1961).

48. Lucio Costa, “*Documentação Necessária*”, in *Lucio Costa: sobre Arquitectura*, ed. Alberto Xavier, (Porto Alegre: Centro de Estudantes Universitários de Arquitectura, 1962), 86-94.

49. André Tavares, *Novela Bufa do Ufanismo em Concreto* (Porto: Dafne, 2009).

50. Francisco Keil do Amaral, “*Uma Iniciativa Necessária*”, *Arquitetura*, no. 14 (April 1947).

51. Adding that, “it is in their villages, in the aspect of their mainly rural buildings at once rude and cosy, that the qualities of the breed show up better. Without the sometimes pedantic view, when unimpeded and relaxed, it then develops naturally, with balanced proportions and, in the absence of “make up”, a perfect soundness of form”.

52. Lauro Cavalcanti, “*Le Corbusier, o Estado Novo e a Formação da Arquitectura Moderna Brasileira*”, in Abílio Guerra, *Sobre História da Arquitectura Moderna Brasileira* (São Paulo: Romano Guerra, 2010), 109.

53. Le Corbusier, *Vers une Architecture* (Paris: Éditions Vincent Frel, 1958).

54. This refers to the educational aspect of Le Corbusier’s crusade focused on learning from the experience of modern life and his desire to educate on dwelling. These coincidences are very important to ideologically support the legitimization the Brazilian Estado Novo offered to modern architects and modern architecture, converting the axis of recognition, formerly located in the old Academy of Fine Arts, in view of Le Corbusier’s participation in this situation.

55. “*Le projet de l’édifice du Ministère de l’Éducation et Culture a été objet d’une étude long et attentif. Face à l’importance de l’œuvre, divers études préliminaires ont été développés, dont il faut souligner ceux qui ont été réalisés par le Corbusier*” cf. “*Memória Descritiva do Trabalho Elaborado com Oscar Niemeyer, Affonso Eduardo Reidy, Carlos Leão, Jorge Moreira e Ernani Vasconcellos, tendo Le Corbusier como Consultor*”, *Arquitetura e Urbanismo* (July-August 1939), in Alberto Xavier, *Lucio Costa: Sobre Arquitectura* (Porto Alegre: Uni Ritter, 2007), 57.

56. See: Jean Louis Cohen, *Le Corbusier, La Planète Comme Chantier* (Paris: Textuel, 2005).

57. Le Corbusier, “*Lettre à Gustavo Capanema de 5.5.1936*”. [Archive Capanema] in Mauricio Lissovsky and Paulo Sérgio Moraes de Sá, *Colunas da Educação* (Rio de Janeiro: MC-IPHAN, Edições do Patrimônio, 1996).

The MESP answered the need for a symbolic modern building simultaneously made “landmark and symbolic landmark. Historic, because it was on it that a monumental scale continuous glass façade was first applied; symbolic because, in a socially and technically underdeveloped country, it was built with a vision of the future”⁵⁸. In the Anglo-Saxon world and in North America the new MESP was widely used as the prototype for modern office buildings suitable for tropical climates. The building was completed in 1942, in time to be photographed by Kidder Smith (1913-1997) and published in *Brazil Builds*, and then, achieve even wide circulation, in the *Architectural Forum* of February 1943. The new building was classified by SPHAN five years later, in 1948, as national heritage, revealing this wonderful ambiguity between past and future, and attesting to the power of the architects in the creation of heritage understood as inheritance in construction. The modern architecture of the future attained the paradoxical status of heritage legacy.

With regard to the originality of its programme and form, construction and functional space, totally different typologies were used to solve the problems of public buildings, most notably the three terraces, developed at various levels, scenically created by Burle Marx, and the innovative use of *brise-soleil* that Le Corbusier had proposed in his studies for Alger and Barcelona in 1933⁵⁹. It became an icon of modernity, a worldwide symbol of progress and the universal scale that the architecture of the Modern Movement could attain: as an ideological symbol of progress, efficiency, modern adventure, challenge and hope for a fantastic future. Form and space performed to emphasize a continuum of visual space developed from different platforms, stairs and ramps, magnificently working architectural promenades. The structural technique of independent building façades, ensured the free plan, with curtain walls employing sun protection systems to control light, while the floor was suspended from the two robust volumes that intertwined so gracefully. The influence of this work on Portuguese architects was huge and had clear consequences for architectural production following World War II in the colonies of Angola and Mozambique.

Design with climate

Although one could argue that what moved the Portuguese architects who worked in the African colonies was the great ideal of the Modern Movement, the truth is that these ideas were certainly tempered by the experience of built modern architecture in Brazil and generally referenced Latin American production that was admired and published in magazines, featuring work from Colombia to Mexico. In fact, the means needed to control the adverse conditions of warm climates were already present in many different types of architectural structures, services buildings, and

58. Le Corbusier, “Lettre à Gustavo Capanema”.

59. Le Corbusier, *Le Corbusier: Oeuvre Complete* (Zurich: Les Éditions d'Architecture, 1995), 108. “Il nous restait une seule solution: le brise-soleil proposé par Le Corbusier pour Algérie. Ce système consiste en un système de plaques adaptés aux façades avec le but de les protéger du soleil...Il devenait donc indispensable, une fois que ce moyen de protection n'avait pas encore été utilisé encore, qu'on élabore un étude avec attention du type à être employé.” cf. “Memória Descritiva do Trabalho Elaborado com Oscar Niemeyer, Affonso Eduardo Reidy, Carlos Leão, Jorge Moreira e Ernani Vasconcellos, tendo Le Corbusier como Consultor”, *Arquitetura e Urbanismo*, 59-60.

social housing blocks, from the time these modern architects had come to Angola and Mozambique.

The application of innovative climate adaptation systems was common, with examples in villas and collective housing erected in Angola and Mozambique. With the new wave of architects operating in the African territories, far from the censorship of the political regime centred in Lisbon, the principles of the Modern Movement were applied without reference to the colonial past, or any concession to nationalist official taste imported from the metropolis. Rather, the place and the weather proved to be sources of inspiration for the creation of imaginative and well-regulating devices, and simultaneously constituted a stimulus and alibi for the foundation and development of a formally exuberant modern language, full of plasticity, volumes and effects of light and shade.

The programmes of climate adaptation relied on architectural solutions designed to enhance the use of "outdoor" spaces, for example the use of access galleries and circulation, and the introduction of sunlight control devices such as *brise-soleil*, using fixed or removable, vertical or horizontal flaps, but also prefabricated grids in concrete or ceramics, as in the Brazilian "combogó".

The *brise-soleil* made of removable flaps were firstly used on the northern façade of MESP, and, was subsequently exhaustively applied on public buildings in Chandigarh and Brasilia, along with other shading solutions. As demonstrated by João Vieira Caldas⁶⁰, the Angolan architect Vasco Vieira da Costa (1911-1982) took this concept further, as Le Corbusier did in the Palace of Justice, in Chandigarh, by associating the concept of grid with the concept of visor, designing numerous variations of large grids coordinated with fixed shading concrete flaps, thereby combining solar protection and ventilation.

The term "tropical architecture" is often associated with Maxwell Fry and Jane Drew, due to the international dissemination of the publication *Architecture in Tropical Humid Zones* (1956) followed by *Tropical Architecture in the Dry and Humid Zones* (1964). Their modern architecture was developed in Nigeria during the Second World War, when Fry and Drew settled as advisors for the development of the territory under the British colonial office. Involved in the theories of the Modern Movement, they participated in CIAM, founded the MARS group (1933) and sponsored a visit by Walter Gropius and Marcel Breuer to the UK. In Nigeria they designed Ibadan University (1949-1960) and in Ghana, St. Francis College (1950) and Adisadel College (1951). Far from European production in African colonies, they designed a new architecture and gave shape to a brand: tropical architecture; *Architecture in the Humid Tropics* was a collaboration with nature "to fill a gap in general information for architects and town planners... to understand how to deal with the circumstances by which they were

60. João Caldas, "Design with Climate in Africa. The World of Galleries, Brise-Soleil and Beta Windows", *DOCOMOMO International Journal*, no. 44 - (2011).

surrounded and invent what was necessary". Recognizing "how invigorating it has been for us architects working in England to shake free from the crippling mental state brought about by too great a reverence for habits and customs which have outlasted their time"⁶¹. Later on, in the early 1950s, the couple also worked in Punjab on the construction of Chandigarh, with Le Corbusier and Pierre Jeanneret (1896-1967). The couple Fry and Drew played a key role in the development of the issue of designing with climate. Their greatest contribution was to reveal, through widely circulated publications, what was behind Brazilian modern architecture and its formal response. In the spirit of Anglo-Saxon precision, the proposal was based on an efficient approach, articulating technical and systematic design tools with sanitary requirements, thus establishing a pedagogical and methodological approach that would have a huge echo. This became associated with the creation of the course "Tropical Architecture" at the Architectural Association (AA) organised with Otto Koenigsberg in 1955, on the completion of a conference with the same name⁶² (1954). The AA curriculum consisted of climatology, building materials, responsible climate design, health and hygiene.

Otto Koenigsberger was one of the pioneers in this process. Trained in the principles of modern architecture, he studied between 1927 and 1931 with Hans Poelzig (1869-1936) and Bruno Taut (1880-1938). His architectural thought and practice changed with his exile in 1933 to Mysore, India, where he was chief architect of the state of Mysore (1939-1948), and later became director of housing (1948 to 1951) of the Ministry of Health of Nehru's government. In 1951 he emigrated to London, joining the department of Tropical Architecture (1954-1971) at the AA School of Architecture, and directing the department from 1957 until it closed in 1971. He worked for the United Nations Housing Missions and, in 1970; he organized the Development Planning Unit (DPU) at University College of London (UCL). In 1974 he published a treatise entitled *Manual of Tropical Housing and Building*⁶³. Recently, this topic has been studied by Vandana Baweja. Studying the limits of resources and energy, theorizing on tropical architecture as a responsible debate on climate, aware of energy awareness and building with local resources, Baweja establishes continuity between architecture and tropical ecology⁶⁴. The beginning of an architecture designed with environmental awareness had followers interested in the climatically responsible design and development of passive climate control technologies, notably in the work of Hungarian twins Victor and Aladar Olgyay who produced an important body of knowledge gathered in the book *Design with Climate: bioclimatic Approach to Architectural Regionalism*⁶⁵ that had enormous transcontinental repercussions from 1963 onwards. The term tropical architecture is seen as a link between colonial planning and modern architecture. The conferences that took place after 1950 paradigmatically defined tropical architecture as a set

61. Maxwell Fry and Jane Drew, *Tropical Architecture in the Dry and Humid Zones* (London: William Clowes and Sons, Ltd., 1964).

62. Kulterman and Frampton, *World Architecture 1900-2000*, 54.

63. Otto Koenigsberger, T.G. Ingersoll, A. Mayhew, S.V. Szokolay, *Manual of Tropical Housing and Building* (London: Longman, 1974).

64. Vandana Baweja and Diana Dunn Morris *A Pre-History of Green Architecture: Otto Koenigsberger and Tropical Architecture, from Princely Mysore to Post-colonial London* (Charleston: BiblioBazaar, 2011) and Ann Arbor (PHD diss. in Philosophy of Architecture, University of Michigan, 2008).

65. Victor Olgyay, *Design with Climate: Bioclimatic Approach to Architectural Regionalism* (Princeton: Princeton University Press, 1963).

of design practices on being *climate responsive*, so Vandana Baweja considers that, over the last 50 years, the concept of tropical architecture has migrated from a hygiene discipline to a discipline of architectural hygiene⁶⁶. Work has also been done in Portugal on the topic of adapting construction and buildings to the tropical climate, notably by authors such as Ruy Gomes⁶⁷ and Jose Pacheco⁶⁸.

Kultermann, the search for a new African architecture

Up to the beginning of the 1950s, critical essays on African architecture published by certain newspapers and magazines only showed French and British architectural output in African colonies⁶⁹. This situation changed in 1956 when the couple Fry and Drew presented a cross-section of research work by other architects facing the modern African experience. They then concentrated on design experience focused on specific tools, creating a sort of case study manual. From the start of the 1960s, the art historian Udo Kultermann became a seminal reference in the analysis of modern architecture in Africa, thanks to his pioneering work *Neues Bauen in Afrika*⁷⁰ (1963) which analysed an area never previously studied by scholars. "For Kultermann the new African architecture could not just be the expression of a response to the climate factor, he called for a wider cultural approach"⁷¹. As already acknowledged, 1960 seemed to be the "Year of Africa", coinciding with the peak of the beginning of the process of decolonizing Africa. This followed the post-war situation and the creation of the United Nations in 1945 (which represented a huge change in the statutes of various parts of Africa that had been "shared" by the European states at the Berlin Conference of 1884), with the independence of 17 countries and the beginning of rebellions leading to independence all over the continent.

Kultermann's approach, questioning the link between tradition and innovation in African architectural production, was unprecedented. Moved by the optimism of the early 1960s, he demonstrated the existence of an African architecture, believing that the new task was to build the new nations and that this implied a new evolution in African architecture.

Six years later, in *New Directions in African Architecture* (1969)⁷², he recognized the existence of an African architecture, pointing towards a future and a path through the analysis of typologies, in order to show trends and draw conclusions. He argued for the importance and value of the school building typology, including universities. In the volume published in 2000, *World Architecture 1900-2000: A Critical Mosaic*⁷³, he used the chronological resume of 1963 and chose to illustrate 100 twentieth-century buildings in sub-Saharan Africa, assuming a border line in the Sahara, and defining Sub-Saharan cultural unity to build the idea of the continent of hope. As Margarida Quintã recognizes, Kultermann's progression emerges from

66. Baweja and Dunn Morris, a *Pre-History of Green Architecture*, 133.

67. Ruy Gomes, *O Problema do Conforto Térmico em Climas Tropicais e Subtropicais* (Lisbon: LNEC, 1967).

68. José Pacheco, *Características da Arquitectura em Regiões Tropicais Húmidas* (Lisbon: Ministério do Exército, Direção do Serviço de Fortificações e Obras Militares, Divisão de Obras Ultramarinas e das Ilhas Adjacentes, 1963).

69. *L'Architecture d'Aujourd'hui*: "France d'Outre-Mer", no. 3 (1945); "Tunisie", no. 20 (1948); "Maroc", no. 35 (1950); "Afrique du Nord", no. 6 (1955); "Afrique Noir", no. 7 (1957). "Commonwealth 1", *Architectural Review*, no. 752 (1959); "Commonwealth 2", no. 761 (1960).

70. Udo Kultermann, *Neues Bauen in Afrika* (Tübingen: Wasmuth, 1963). Udo Kultermann, *Architecture Nouvelle en Afrique* (Paris: Morancé, 1963) (French translation); *Arquitectura Moderna em África* (Barcelona: Gustavo Gili, 1963) (Spanish translation).

71. Margarida Quintã, "Une Introduction à La recherche 2", EDAR, EPFL, 2013, 5.

72. Kultermann, *New Directions in Africa Architecture*.

73. Kultermann and Frampton, *World Architecture 1900-2000*.

the optimism to have room for doubt in 1969, and then to hope on the threshold of the 20th century⁷⁴.

His work was followed in 1996 by Elleh Nmandi⁷⁵, in *African Architecture, Evolution and Transformation*, reinterpreting the concept of triple inheritance, the result of the indigenous cultures, Islamic and Western, as the intersection of influences exerted on modern African architecture. Kultermann assumed the demand for a new modernity would rescue the African tradition, taking on a cultural uniqueness while directing attention to buildings with educational functions as “the most significant architectural achievements in Africa”⁷⁶. As we shall see, in the case of the Portuguese colonies, the development of school architecture had a huge influence, confirming its connection to colonial strategy⁷⁷. The truth is that, during the postwar period, together with the development of the liberation processes, school architecture developed adopting the expression of modern production. In Mozambique, as we shall see, this typology was to be extensively developed by a group of architects, notably the work of Fernando Mesquita. Kultermann argues that the evolution of African architecture from colonialism till the maturity of the first strands of an African identity took place in a short period of time,⁷⁸ promoting the introduction of Western contributions in the development of construction techniques and technology. At the same time, these rapid changes favoured the awakening of a return to tradition. Of architects active in Portuguese-speaking Africa, Pancho Guedes (1925-2015)⁷⁹ is the only one recurrently referred to and analysed by Kultermann, drawing a parallel between regional and global context⁸⁰.

Ulli Beier (1922-2011), who Kultermann met in 1962 at the 1st International Congress of African Culture, organized by Frank McEwen (1907-1994), considered it necessary to find a shortcut between traditional African arts and modern forms of expression. In the group of Pancho Guedes, Ulli Beier states that they could “deliberately create a set of circumstances, an atmosphere in which such a development” outside the academic formation could occur. He adds: “The most successful were Pancho Guedes in Maputo and Frank McEwen in Salisbury” and portrays Pancho Guedes as an architect and painter interested in the activities of local young artists: “Visiting his home is like a visit to a workshop: painters, carvers and embroiderers are working everywhere. Pancho Guedes gives no formal courses but encourages criticism, buying works and sometimes providing a monthly allowance that allows the artists to work full time without financial problems”⁸¹.

Regarding the more radical influence of the CIAM, only in the 1940s after the completion of the First National Congress of Architecture (1948), did references in Le Corbusier's Radiant City to its Ville and the Charter of Athens begin to be noticed⁸². The ideas of Le Corbusier were warmly received, not only to replace the horizontal garden city by a vertical one, but also the

74. Margarida Quintã, “Une Introduction à La recherche 2”.

75. Elleh Nmandi, *African Architecture, Evolution and Transformation* (New York: McGraw-Hill, 1996).

76. Kultermann, *New Directions in Africa Architecture*.

77. Ola Uduku, “Educational Design and Modernism in West Africa”, *DOCOMOMO International Journal*, no. 28 - Modern Heritage in Africa (2003).

78. Kultermann and Frampton, *World Architecture 1900-2000*, 32.

79. Ana Tostões, “Correspondences by Pancho Guedes”, EAHN/FAUUSP Conference Architectural Elective Affinities: Correspondences, Transfers, Inter/Multidisciplinarity, São Paulo, March 2013.

80. “Pancho Guedes built over 25 years in the remote country of Mozambique, an architectural world in which old and new, European and African, fantasy and radical requirements were no longer contrasting each other, but were unified into a new whole, a *Gesamtkunstwerk* in which all the included values were enhanced and elevated to a new level”, in *S AM 03 Pancho Guedes: an Alternative Modernist* ed Pedro Gadanho (Basel: Christoph Merian Verlag, 2007).

81. *As Áfricas de Pancho Guedes. Coleção de Dori e Amâncio Guedes*, Lisbon, ed. Alexandre Pomar (Lisbon: Câmara Municipal de Lisbon, 2010), 53.

82. In 1935, Le Corbusier published “*La Ville Radieuse*” as in former plans, he presents “une ville centralisée forte densité de population, la conception et une organisation hiérarchique par un zonage fonctionnel (logement, les loisirs, le travail et le mouvement).” The main difference lies in the room layout, which had previously demonstrated economic stratification, and now follows the criteria of elements per family. The skyscraper is proposed, which became known as *Unité d'Habitation*, a building with mixed functions, repeatable along the plan. During the CIAM, the 4th Congress was held (1933), where the principles of functional city were discussed, resulting in the Athens Charter.

repetition of housing units articulated by pedestrian paths separated from traffic lanes. In 1948, the magazine *Arquitectura* published an article about the CIAM VI dedicated to the theme “Can our cities survive” held in 1947 in Bridgewater, England, expressing the desire to familiarize readers with the importance of the discussed issues: “and as we know what is outlined in the north, between the architects and planners with an open mind to the problems of our time, a movement of adherence to these principles, we will provide our contest as a laudable initiative, disclosing to the extent possible, the ideals and work of CIAM”⁸³. The Athens Charter was then translated and published by Francisco Castro Rodrigues⁸⁴ (and his wife Maria de Lourdes Rodrigues), before travelling to Angola where he permanently settled as chief architect of the Municipality of Lobito, developing urban plans applying the principles set out in CIAM IV (1933). He worked in town planning and architecture, applying a programme that organised the city according to four vital functions: housing, leisure, work and circulation. Furthermore, he designed several public facilities that dramatically illustrate the concept of leisure adapted to a culture and a place like Africa, responding to a tropical climate: the School of Lobito (1966-1967), the Lobito Market (1958-1964) and the movie-terrace Flamingo (1963)⁸⁵.

In 1949, the Swiss master was again quoted in the *Architecture*⁸⁶ magazine news, this time with a letter sent in 1936 to a group of modern architects in Johannesburg on the occasion of a manifesto they published in the journal *South African Architectural Record*. The following paragraph was republished an article that summarized the work of CIAM, with the results of CIAM VII, held in 1949 in Bergamo, Italy⁸⁷. In 1959, the last CIAM was held and Team X was formed, presenting itself as a vanguard including Pancho Guedes, the architect from Mozambique who maintained a large network of international knowledge, justifying the fact that was the only Portuguese architect to be published outside the country⁸⁸.

The influence of Le Corbusier was present mainly in Angola, in the work of Vasco Vieira da Costa and Fernão Simões de Carvalho, who worked in Paris, in the atelier on *Rue de Sèvres*, and took the course of urbanism, which explained their ideological commitments, as shown later, in these architects’ plans for Luanda. In fact, the principles of the Modern Movement were applied from the 1950s, especially in the Portuguese overseas territories. On one hand, the African colonies in the southern hemisphere were geographically remote from the repressive control of the metropolis, on the other hand, these territories also constituted a new world, in which the size and the need for development promoted a wide range of experimentation and innovation in the fields of planning and construction. Finally, the lexicon of the architecture of the Modern Movement spurred a creative response and was especially suited to respond to the climate and tropical environment.

83. “Um Novo Congresso dos CIAM”, *Arquitectura*, no. 19 (January 1948).

84. Due to the size of the document, twelve editions were necessary to publish the Athens Charters: *Arquitectura*, no. 20 (February 1948), *Arquitectura*, no. 21 (March 1948), *Arquitectura*, no. 22 (April 1948), *Arquitectura*, no. 23-24 (May-June 1948), *Arquitectura*, no. 25 (July 1948), *Arquitectura*, no. 26 (August-September 1948), *Arquitectura*, no. 27 (October-December 1948), *Arquitectura*, no. 28 (January 1949), *Arquitectura*, no. 29 (February-March 1949), *Arquitectura*, no. 30 (April-May 1949), *Arquitectura*, no. 31 (June-July 1949), *Arquitectura*, no. 32 (August-September 1949).

85. On this subject, see Ana Magalhães, “Modern Architecture in Africa: Open-Air Movie Theatres”, *XI International Docomomo Conference*, Mexico, 2010.

86. Le Corbusier, “Carta de Le Corbusier”, *Arquitectura* no. 30 (April 1949).

87. The architects Alfredo Viana de Lima (1913-1991) and Fernando Távora attended the last CIAM meeting in 1959. Eric Paul Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge: MIT Press, 2000).

88. “Pancho Guedes”, *Architectural Review*, no. 770 (April 1961) and “Pancho Guedes”, *L’Architecture d’Aujourd’hui*, no. 102 (June-July 1962).

The relationship between architecture and revolution became clear to many. In this context, the statement of modern architecture was seen as a political compromise, designed not only to solve the housing problem, but also to extend this action to urban design and planning. This period was an extraordinary challenge for the African generation that not only had the opportunity to work according to a system based on a progressive discourse, but also to take on the design of large-scale works. Encouraged by the vastness of the African landscape, one could believe that they were involved in the construction of a new place, a new world capable of responding to the ambition of a progressive modern transformation.