Annette Condello · Steffen Lehmann *Editors*

Sustainable Lina

Lina Bo Bardi's Adaptive Reuse Projects

Springer

Aerial view of the SESC Pompeia Complex in São Paulo (*Photo* Nelson Kon)

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Foreword

Barry Bergdoll

In 1992, when she died after a half-century-long career in architecture, design, and curating, first in Italy then after 1946 in Brazil, Lina Bo Bardi (1914–1992) was honoured with only a handful of obituaries in architecture magazines outside Brazil. In 2014, when she would have turned one hundred, museums on three continents competed to stage a retrospective and to borrow material from the Instituto Lina Bo e P.M. Bardi, the foundation Bo Bardi and her husband, the picture dealer/art critic/impresario Pietro Maria Bardi (1900–1999) created in Sao Paulo to safeguard the couple's archives and her first built work in the new world, the *Casa de Vidro* (Glass House). In 1993, less than a year after the architect's death, the institute had mounted a travelling retrospective accompanied by a richly illustrated catalogue of her architectural work. It revealed the ever-escalating engagement of her work with themes of the Brazilian vernacular, with nature and verdant plant life, by creating a stage for unprogrammed social interaction, in short for a range of concerns quite distinct from modernist doctrine and quite prescient in relationship to challenges of a post-industrial world for an architect working in a country desperate to industrialize. The exhibition was a major assessment mounted by two of the architect's most talented former assistants, Marcelo Carvalho Ferraz and André Vainer. It travelled to forty-six venues in the Americas, Europe, and Asia for nearly a decade, by which time its catalogue, printed in eleven thousand copies in Portuguese and English, was sold out. Doctoral dissertations were begun, and scholarly books got underway with the opening of the archives; but it has only been since 2008, when the 1993 catalogue was reissued in a third edition that Linda Bo Bardi began to enjoy a new and unexpected posthumous life as her work infiltrated simultaneously lifestyle magazines and the international bonanza of the contemporary art world. Even the ubiquitous art guru Hans Ulrich Obrist "discovered" her and staged an exhibition about her in her house. Clearly, Lina Bo Bardi's time was ripe.

In the last few years, Lina—as she is now affectionately referred to by a growing number of friends—not limited to the several hundred who have friended her since "she" launched "her" page on Facebook in 2014—most of whom never met her has become something of a household name in ever-growing architecture and art world circles. Unlike Oscar Niemeyer who died at 107 just as Lina would have turned 100, architects do not bemoan a domineering presence in Brazilian architecture that had official commissions in South America's largest country stuck in a time warp, but rather strive to bring Lina's achievements ever more emphatically into the forefront of the historical record and to devise ways for an active re-engagement with her legacy. Just what forms that might take is perhaps too early to tell, but the present collection of essays is a very important and engaging start, one of the first since Zeuler Lima's sensitive reflections on Lina's complex legacy of 2013, to suggest that to take Lina as an inspiration is to deal with her contradictions and to evaluate the stakes of what she struggled with in a twenty-first-century world. In fact, recently I complained that Lina Bo Bardi was well on her way to becoming the Frida Kahlo of architecture, a figure so universally adored that productive critical engagement with her work runs the risk of being eclipsed rather than illuminated. She has indeed rapidly become the very symbol of what so many are eager for: a heroic female architect with a dedicated stance, a positioning of her efforts muddied

historically by her insistence in her final public appearance in 1989 as recounted by Lima in an important article on Bo Bardi's contradictions in *Places*, when Bo Bardi announced: "In Brazil, I have always done everything I wanted." She added, "I never faced any obstacles, not even as a woman. That's why I say I am Stalinist and anti-feminist".

No less are many eager, in the wake of the repeatedly predicted demise of the decade long cult of the Starchitect, to elevate Bo Bardi to the role of patron saint of a new movement of socially engaged architects, one very much in the public consciousness with the choice of Alejandro Aravena in 2016 as both the winner of the Pritzker Prize and the director of the Venice Architectural Biennale. Lina's time has come, although in most cases her role as role model and the historical investigation of the complexities of her positions and even the formal contradictions of many of her projects, beginning with her glasshouse with its inspiring glass box front liberated from the ground and its rarely discussed earth bound service and servant's quarters behind designed very much in the tradition of a Portuguese colonial house, have yet to be fully embraced. Today, Bo Bardi's progressive embracing of populist culture and vernacular traditions which came to temper more and more her ambitions to dialogue with the precepts of the modern movement, notably in the two great glazed boxes held aloft in the garden of the Bardi's house of 1951 in Sao Paulo and on the Avenida Paulista in the heroic gesture of glazed painting galleries lifted above a generous plaza by enormous concrete piers and trusses, resonate with a whole range of current anxieties. Embracing Bo Bardi seems almost a means of arresting architecture's progressive disengagement since the 1970s from social commitments and its relentlessly expanding complicity with consumerism and urban marketing, even in the wake of what might have seemed a setback with the worldwide financial crisis of 2008. Yet this is just a beginning of what Lina Bo Bardi's work might suggest to us in tracing both a more complex historical picture of architectural practice, particularly of her later years of the 1980s, and that of engaging with what might be valuable to reflect on for current practice.

What the authors gathered here have laid out is a very timely invitation to discern "Lessons from Lina" in relationship to today's pressing issues of architecture and environment, sustainability, recycling, and developing an ethical design position in a world of diminishing resources and escalating challenges. And they have done so without the hero worship of many recent celebrations which have removed Lina Bo Bardi from her context at once Brazilian and international, establishing the extent to which she carved an original and personal position in a discursive field that extended from the emerging interest in repurposing industrial buildings as with Lawrence Halprin's work in San Francisco's Ghirardelli Square—an important harbinger of the thinking occasioned by the first oil crisis in 1973—to the reflection in Brazil's northeast, which had such an impact on Bo Bardi's thinking and designing, on the relationship of craft and native know-how to design and space. Renato Anelli, in particular, points to the much needed historical work of understanding Bo Bardi as a figure in critical dialogue with many fields and many thinkers, locally as well as internationally, at once of her time and yet pioneering solutions that we must still evaluate in both historical and legacy terms. Equally important in these four essays is the desire to look very specifically at the work in relationship to complex issues of resource management, to renewability of resources, to provocative thinking about the stakes and challenges of a world of zero waste, to the choice of species in everything from landscape selections to building materials. The essays collected here indeed begin the important dialogue between the challenges of the present, many of which Lina Bo Bardi could hardly imagine in 1992, and the explorations of her work. They take account for those of her projects which posited valuable experiments but failed, like the abandoned work on the hillside of Salvador which was a very short-lived success. At the same time, they ask questions of that work from the perspective of contemporary challenges which allow us to see aspects of the work that were not yet framed fully as modes of analysis, design, and debate in the 1950s–1980s, when Lina Bo Bardi's work was tested with encounters with the unexpected from the second emigration from her adopted home of Sao Paulo to the Afro-Brazilian culture and intense climate of Bahia to the encounter with the Brazilian dictatorship which skewed the

relationship of the designer to the possibility of a public sphere. Lina Bo Bardi's work is only liberated to take on relevance today if first it is anchored firmly in the rich context in which it came about, something that is very richly done in Anelli's contribution here. Indeed, one needs to understand the very different contexts of the Brazilian dictatorship of the 1970s and the current worldwide crisis, not the least the crisis in Brazil. And it only can be submitted to scrutiny that can yield new points of departure for contemporary design if its contradictions are acknowledged and if new questions are asked of it on firmly established historical ground, that is, the work that is begun by these essays. The authors suggest a new valence of engaging with Lina Bo Bardi far from the hero worship that all too often has run the risk of obscuring the very reason why we should continue to look, to visit, to try to preserve, and to think anew about Lina Bo Bardi.

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Sustainable Lina, An Introduction

1

Annette Condello and Steffen Lehmann

Fig. 1.1 Portrait of Lina Bo Bardi by Gregori Warchavchik São Paulo, Brazil, in the early 1950s (*Photo* Gregori Warchavchik; Courtesy Gregori Warchavchik Collection)

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Never should the architect waste his abilities on creating new forms.
(Adolf Loos ca.1924)

Foreseen to be one of the biggest events to happen in Brazilian history, the fervour of the approaching Olympic Games in Rio de Janeiro must address its recent environmental and ecological crises. This is especially the case with the environmental disaster caused by the recent collapse of two mining dams in the state of Minas Gerais as well as the continuing deforestation of protected areas. In order to build a better world, or rather a better and more sustainable Brazil, should architects, as the modernist Adolf Loos pointed out, be concerned about creating new forms? Does it matter if vacant buildings that are aesthetically undistinguished, for instance, the decaying modern luxurious Hotel Gloria in Flamengo (Jaguaribe 2014), Rio de Janeiro, which once accommodated presidents (such as Agustín Pedro Justo), physicist (Albert Einstein) and architects (Le Corbusier), continue to deteriorate to the point that it must be demolished? The adaptive reuse projects, as part of the name of this book suggests, is about Lina Bo Bardi's late works located in Brazil. The first noticeable thing about the drawings of her projects is that the sketches were made by using the Biro or ballpoint pen.

To easily label crate goods, in the early 1940s, Hungarian journalist and surrealist painter László József *Bíró* accepted Argentinian President Agustín Pedro Justo's invitation to relocate himself from Budapest to Buenos Aires to patent his invention of the ballpoint pen, *birome*. At that time, after Brazil declared war on Germany and Italy in August 1942, President Justo accepted an order as a Brazilian army general. In doing so, *Bíró* would revolutionize the way artists would communicate their works creatively throughout South America and the rest of the world, and sold the patented invention to Bic Company (Hargittai and Hargittai 2015). In the 1940s, Argentinian-born Italian artist Lucio Fontana, recognized as the first biro pen artist, exhibited at the 1st *Bienal do Museu de Arte Moderno* of São Paulo, Brazil, in 1951 (Crispolti 2005). Some thirty years later Fontana's biro artwork has been linked to the Arte Povera Movement and compared to São Paulo's Pompeia Factory Complex with its façade punctuated with holes designed by Bo Bardi.

Celebrated Italian-born Brazilian architect Lina Bo Bardi (born in Rome 1914—died in São Paulo 1992) has recently been "rediscovered" and her heterogeneous and unusually diverse oeuvre is remarkable. A devotee of the Bic pen, she used it as a medium to design her buildings since it was an accessible and convenient tool to carry while travelling between sites, and because of its light-weightiness. She was one of many Bic-architects. Around the world, trillions of Bics are discarded. In poor countries they are considered luxuries. Once the ink runs out of them, the inner parts are thrown away, while the outer shells are recycled. Bo Bardi adapted the same principle. She repurposed objects and buildings from abandoned sites that did not use up or entirely destroy resources. She recycled the outer shell of buildings while inserting new life into the old corpses. The book critically reflects upon Bo Bardi's adaptive reuse projects from the 1960s onward, exploring issues about ecology, sustainability, luxury, cross-cultural links and recycling/upcycling.

Introduction

The term "sustainable" is derived from the Latin verb "*sustinere,*" which describes relations that can be maintained for a very long time, or indefinitely. Sustainable development has been defined as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland/UN Commission 1987; and Portney 2015: 4). The idea of "sustainable urban development" originated at the 1992 UN Conference and Earth Summit in Rio de Janeiro, and is based on the concept of balanced environmental planning instruments and methods. This is the reason why Bo Bardi's work is relevant.

Sustainable architectural design is defined as the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life cycle, from concept to design, construction, operation, maintenance, renovation and end of use/demolition. Although new technologies are constantly being developed, the common objective is for sustainable buildings to be designed to reduce the overall impact of the built environment on human health and the natural environment by efficiently using energy as well as water, materials and other resources and reducing waste and pollution. These are buildings that effectively manage natural resources by taking all possible measures to ensure that the need for energy is minimal during their operation (applying passive and active systems to harvest renewable energy sources); in these buildings, cooling, heating, ventilating and lighting systems use methods, technologies and systems that conserve non-renewable energy or eliminate energy use (Lehmann 2010).

Studying the built heritage of Brazil, in particular, buildings from a pre-air-conditioned colonial era in geographies where Bo Bardi's works are located, plays an important role

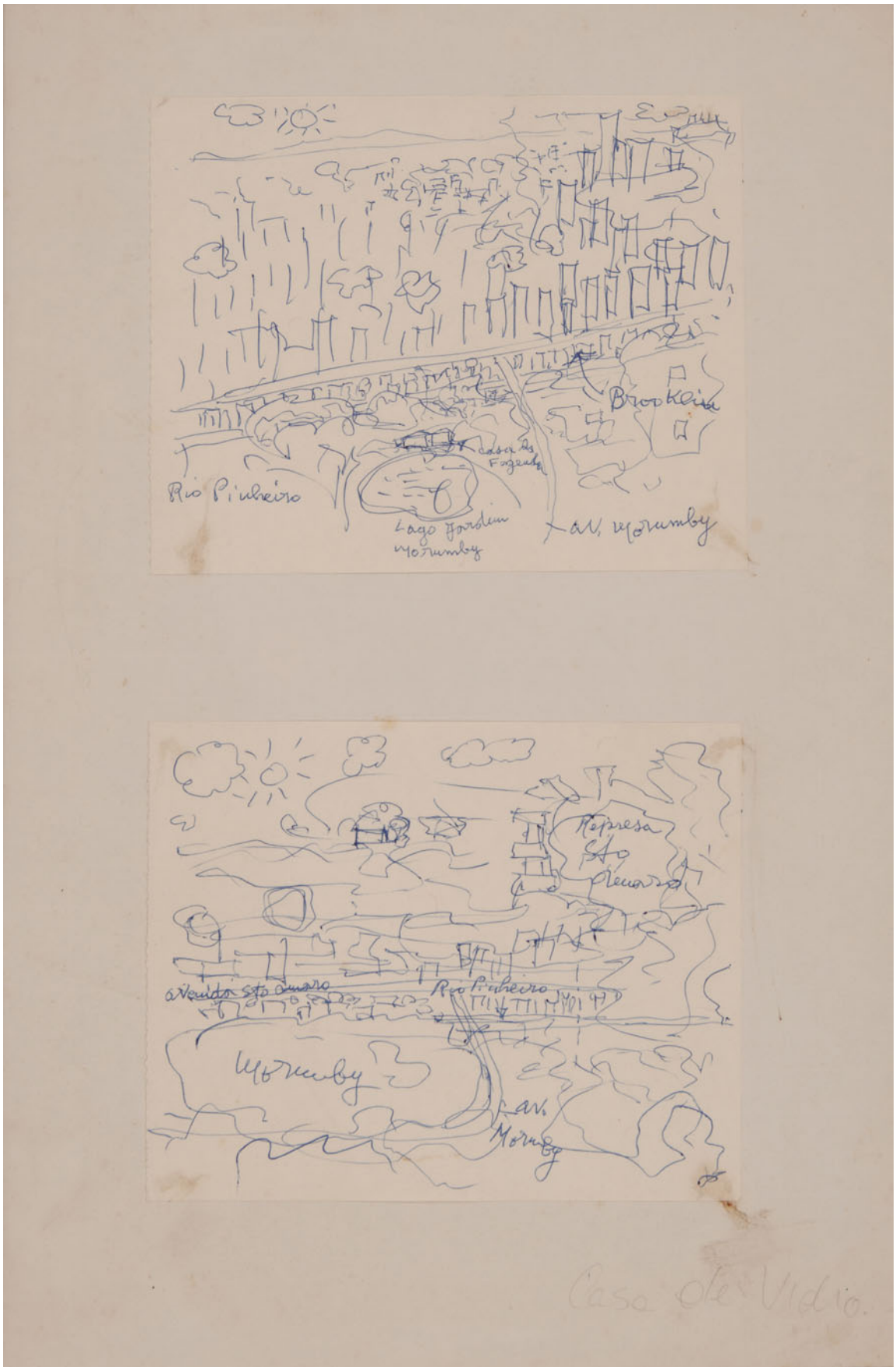

Fig. 1.2 Lina Bo Bardi's biro sketches of suburban Morumbi and the City of São Paulo in the distance (Instituto Lina Bo e PM Bardi)

in the shift towards a low-carbon society. It offers a large resource of knowledge about design principles and how architects and builders have operated for hundreds of years within the challenges of extreme climates. The most sustainable building is the one that already exists (Lehmann 2010). The built heritage contains a large amount of embodied energy in the existing building stock. It also offers a large resource of knowledge about design principles and how architects and builders used to operate within the constraints and challenges of extreme climatic conditions, such as, for instance, in a tropical or hot and arid climate of Brazil. Unfortunately, much of this knowledge has been forgotten or was marginalised through imported Modernism. But it was Bo Bardi who created the "rustic" *brise-soleil*, emanating from Le Corbusier's northern African projects, which were popularised in the 1930s in Latin America.

"Climate-responsive" architecture means that the building's facade and systems can respond to different climatic conditions, to weather-related changes and to shifting day/night conditions (Daniels 1995). One of the fundamental principles is to design buildings "low tech," where passive strategies are employed before active ones are used. Historical buildings are a great educational source as they frequently achieve "more with less": high comfort for building occupants, good indoor air quality combined with surprisingly low energy requirements.

The current furore over the sustainability debate as being moral, cynical ("green-washing") or undogmatic has prompted questions about its architectural invention. Sustainable, for architectural critic Mario Carpo, alludes to something else:

> As it was practiced and theorized in the 1960s and '70s, [when] ecology was still part of a modernist agenda. Like many revolutions, it was a player within the historical (and historicist) field against which it took a stance. Sustainability is quintessentially postmodern. And premodern, too….
>
> … The diverse ideologies underpinning it may thrive within the general compass of a postmodern environment, but today's single-minded pursuit of a "sustainable" development is not a postmodern version of social responsibility. It is postmodernism run out of gas.
>
> (Carpo 2007: 21)

Bo Bardi's work in Brazil corresponds with these specific architectural environments that were not only affected by European importations but also North-American variations. Sustainability has also been considered as a multi-layered idea. Oslo firm *Rotor*, whose look at sustainable architecture in *Beyond the Green Door* (2014), critiques what occurred at the 1992 Rio de Janeiro United Nations Conference, the same year Bo Bardi passed away: "the aspirational goal of sustainability was further developed and represented as a quest for balance to be found at the intersection of three areas of concern: ecology, economy and equity" (Maarten Gielen 2014: 13).

In creating a dialogue between what is old and new, Bo Bardi's works, specifically her conversion of an abandoned industrial factory into the well-known SESC Pompeia Leisure Complex (1977) in Sao Paulo, has resurged in different forms. In 1993, Paulo Mendes da Rocha's respectful renovation of the Pinacoteca do Estado, Sao Paulo's oldest fine arts museum; Herzog and de Meuron's conversion of London's Bankside Power Station onto the Tate Modern in 2000 (da Fonseca et al. 2014), *Brasil Arquitectura's* successful regeneration of an old warehouse into the Piracicaba Central Mill Theatre (2012) in Brazil; and recently OMA and Rem Koolhaas' conversion of a century-old distillery into Milan's Fondazione Prada Art Centre (2015) in Italy.

Our aim is to offer a fresh look on a varied selection of sustainable interpretations of Bo Bardi's work to provide today's readers with alternative views from the authors about adaptive reuse, why it has become re-purposeful and necessary. Materials and resources are being depleted at an accelerating speed and rising consumption trends across the globe have placed adaptive reuse, material efficiency and waste reduction at the centre of many government policy agendas (Lehmann and Crocker 2011). The various arguments in this book discuss different approaches to how Bo Bardi "invented" and introduced sustainability in Brazilian architecture.

Lina Bo Bardi Beyond the Green Stair

Arriving from Italy in Brazil on a luxury liner in 1946, the multi-talented Bo Bardi was an architect, a furniture designer, urbanist, political activist, an editor and writer and a curator of exhibitions (Lima 2013). Her adaptive reuse of buildings has imparted a clean haze over those who follow her, using the built heritage as a strategic urban resource. The chapters herein address the problem—responding to the sustainability debate through the lens of Bo Bardi's late projects. "Architecture," for her, was "an organism for life" (Oliveira 2015: 25).

This book unravels the link between regional culture and adaptive reuse of existing buildings. It concentrates on the social dimensions relating to Bo Bardi's late projects and works from the 1970s until her death in the early 1990s, interpreting her themes, technical sources and design strategies of the creation of luxury as sustainability. Our co-edited book charts how Bo Bardi "invented" her own version of sustainability, introduced this concept through ideas about cross-cultures in postcolonial Brazil, recycling and her landscape designs.

Bo Bardi has received greater professional and popular attention internationally, mostly deriving from her renown as the designer of the Glass House and the MASP art gallery, both located in São Paulo, between the 1950s and 1960s (Bergdoll et al. 2015; Bo Bardi 2012; Comas 2009; Deckker 2013; Fraser 2015; Lima 2013). Recently, books, such as, Simon Unwin's *Twenty-five Buildings Every Architect*

Should Understand (2015), featuring Bo Bardi's "Glass House" on the book's cover; Mara Sanchez Llorens's *Lina Bo Bardi: Objectos y Acciones Collectivas* (2015), focusing on the study of the toys as objects created by Bo Bardi and the architectural dialogue with them; *Lina Bo Bardi 100. Brazil's Alternative Path to Modernism* (2014), including chapters by Steffen Lehmann and Renato Anelli; and Rowan Moore's *Why We Build* (2012), illustrating the city of São Paulo of the book's cover, all highlight in some way Bo Bardi's famous buildings but less on her adaptive reuse works.

Selected works to be explored in our book include Bo Bardi's private and public buildings, their respective environmental designs and their luxuriance via vegetation. The buildings are naturally cross-ventilated, have effective sun shading, reuse existing structures and local materials and construction techniques. Their placement of windows and openings is informed by passive design principles. Primarily an architect, she is considered a landscape architect (Condello 2014b) in the sense of her topographical inclusion of the native Brazilian plant world in her projects. This book also highlights the indigenous, Afro-Brazilian cross-connections and continuation between dynamic vernacular, landscape architecture and contemporary Brazilian architecture, and their importance for sustainability.

In linking the discussion between recycled buildings and luxury, the discussion in this book provokes the origins of sustainability in the context of consumerism and how it entered the discussion in the first place—is not all-sustainable architecture luxurious? Sustainable buildings can be elegant if they are deemed to be luxurious if they are renewed. "Loos advocated pro-modern luxury. He was in awe of luxury items and respected the ethical dimension in producing goods. If materials are deemed to be good, then they must be handled in the right way" (Condello 2015: 20). "Luxury," for eighteenth-century French poet and philosopher Jean Francois de Saint-Lambert, "was an anthropological universal, manifest in phenomena ranging from the hammock of the 'savage' to the sofa and the bed of the European" (Erlin 2014). As necessary luxuries, sustainable furnishings, such as the hammock, inform Bo Bardi's architecture in intriguing ways. "Architecture is a luxury, the utmost salvageable luxury from demolition, and is amplified in most contexts since it is a permanent phenomenon" (Condello 2014a). Our book examines Bo Bardi's projects in light of historical circumstances, especially their cultural/landscape architectural/ecological traces. Specific case studies inform a method for revealing an instructive dimension common to both culture and architecture by identifying unrecognized recycled sites of investigation. The book provides a critical reflection upon Bo Bardi's writings (such as *Propaedeutic Contribution to the Teaching of Architecture Theory* and *Stones Against Diamonds*) by interpreting her reuse of architectural fragments. Structured chronologically with respect to Bo Bardi's Brazilian career, the book focuses on her late work.

Bo Bardi's urban renewal output is significant because of her importance as an architect who respected regional cultures and rituals. The use of local materials and construction know-how is again relevant today, where the unresolved tensions between regionalism and globalisation are played out in many fast growing cities around the world. We now live in an urban age. Today, cities are increasingly developing "dense nodal points of economic agglomeration" (Sassen 1994) and concentration points of capitalist growth, such as Sao Paulo and Rio de Janeiro. The urban age-paradigm has framed questions regarding the contemporary condition of human activity and the dichotomy of a dialectical relationship between urban and rural zones, inter-connected by infrastructure and transportation corridors.

Taking heed of Lucio Costa's "national tradition" of retaining buildings, where historical sites are safeguarded and grounded, Bo Bardi's adaptive re-use projects in Bahia opened up an alternative way into modernism that makes Brazil such a unique case (Lehmann 2014). In recovering elements, Bo Bardi severed ties with Modernism and Brutalist aesthetics since for her beauty and proportion were not so important (Condello and Lehmann 2016). They were unauthentic. What was, however, authenticated was the way in which Bo Bardi repurposed waste, which we see as a new form of adaptive reuse material.

We construct a new way of thinking through adaptive reuse of buildings—to consider human interfaces with thoughtful public spaces more critically—luxury as sustainability by focussing on the strategies:

- adaptive reuse of existing buildings and structures wherever possible (provided their energy costs in use can be reduced to an acceptable level), and
- design buildings for endurance and durability with ease of maintenance and adaptability to changing needs.

Sustainable Lina is a timely publication that aims to bridge the world of urbanism and culture with the world of energy/material flows and sustainability; offer the following: new insights into the cross-cultural background of sustainability and luxury; diverse critical reflections on adaptive reuse of projects; and new material for further study.

Themes

The book is not about cultural heritage or preservation per se but it discusses new ideas about upcycling, salvaging, recycling and restoration by using existing building structures

as an urban resource and by unravelling the cross-cultural spaces (each with their own narratives) that complement the region or future cities. It is also about how buildings and vegetation meld with one another in a sustainable manner through its site's luxuriance, and Bo Bardi's design research methods. The editors have thus chosen to organize this book according to the following chapter themes.

Chapter 2, *Keeping the Existing: Lina Bo Bardi's Upcycling and Urban Renewal Strategies* by Steffen Lehmann, outlines the importance and environmental/cultural benefits of Bo Bardi's adaptive reuse projects. Her strong engagement in the adaptive reuse of existing buildings (rather than in new-built construction) marks a clear paradigm shift in thinking about the historical context and existing colonial structures in Brazil's modernism and the commencement of adaptive reuse as an eligible strategy for sustainable urban renewal of the run-down Baroque city centres. In the 1970s, this introduced an entirely new approach in Brazil, as the previous period of heroic Modernism, obsessed with novelty, usually started with a "clean slate," involving the complete demolition of existing old fabric to make space for the new. It explains the important link between retaining existing buildings and sustainability, and its positive environmental and social impacts. Adaptive reuse frequently reduces the negative impact of construction on the environment and the depletion of non-renewable resources; in addition, it maintains the place memory and identity. Then, the chapter introduces the cases of adaptive reuse projects in Salvador and São Paulo (designed and realised between 1977 and 1992, with SESC Pompeia as the key project), which encapsulate well the new focus on urban rehabilitation of these run-down historical districts and their Afro-Brazilian cross-connections. During this time, Bo Bardi's aesthetic inspiration and search for meaning led to her personal interpretation of the vernacular, regional and colonial. It introduces the term "dynamic and ephemeral regionalism" (to replace the term "critical regionalism") and concludes with how Bo Bardi used adaptive reuse as a design strategy to deliver resourceful projects that maintained the identity of place. This chapter argues that the renovation works by Bo Bardi mark the beginnings of sustainability in modern Brazilian architecture, in the late 1970s.

Chapter 3, *Salvaging the Site's Luxuriance: Lina Bo Bardi —Landscape Architect* by Annette Condello, focuses on the multitudinal qualities of luxury articulated in Bo Bardi's repurposing of abandoned buildings. The chapter analyses her adaptive reuse projects work through the lens of landscape. Starting from the late 1960s on, when the ecological awareness about resources became increasingly a concern (when Rachel Carson's book "Silent Spring" was published in 1962; followed by Ian McHarg's "Design with Nature" in 1969), Bo Bardi's writings in Brazil indicate her growing interest with the Amazon forest and rural experiences of the Northeast semi-desert region, motivating different facets within cities of their indigenous or imported origins. Environmental degradation motivated her to rehabilitate archaic and industrial structures, resuscitating their missing parts with new spoliated forms, thereby salvaging a site's luxuriance, that is, to save its living environment. Such projects included the SESC Pompeia Leisure Centre, *Teatro Oficina*, *Morro da Urca* Cable Car Station and *Coaty* Restaurant. Modern Brazilian artists, landscape architects and architects, most notably Tarsila do Amaral, Roberto Burle Marx, Mina Klabin Warchavchik and her husband, Gregori Warchavchik, played a key role in guiding Bo Bardi's career towards salvaging spoils, or architectural fragments, both pre-Columbian (antique ruins) and once modern, and now archaic, factories with vegetation. This salvaging process, in turn, compelled her to conserve extant buildings in intriguing ways. She cultivated otherwise outmoded structures by creating "plant" rooms, not for machinery, but for people. The building's perimeter preserved the site's luxuriance, but articulated it in a new outdoor form. Bo Bardi, for instance, fabricated a reed motif into a crinkled-concrete profiled vertical panel as walls to resemble nature's luxuriance. And she reconceptualised waste (or refuse) as raw material for her *No Ibirapuera* Popular Art of Bahia State exhibition. This chapter argues these projects triggered Bo Bardi to environmentally-salvage botanical and cultural luxuriance within abandoned buildings, to create instructive recombinant models for "re-fuse" by salvaging the site's natural and constructed waste. As a result, the "re-fuseful," as opposed to refuse, is a new-found axiom for adaptive reuse for the environment.

The strategy of recycling is central to Chapter 4, *Recycling and Restoration: Adding new Meanings to Historical Buildings Through Minimal Interventions*, in which Renato Anelli discusses Bo Bardi's careful design research methods. After graduating in architecture in Rome, Italy, at Gustavo Giovannoni's school, Bo Bardi was trained in scientific restoration and later, in Brazil, followed his development of critical restoration. The design principles of critical restoration were applied to the *Solar do Unhão* museum. This restoration and adaptation, however, were simultaneous to her ethnographical research on utensils that were produced by poor and rural inhabitants of the Northeast region. Beyond the use of handicraft building techniques in the construction of the *Solar do Unhão's* museum's new stair, the clever reuse of worthless objects as utensils for everyday life founded the principles of what she nominated as "the civilization of survival." What she found in these recycled objects was essentiality, which she considered comparable to the essence of Japanese culture. Such essentiality was present in Bo Bardi's SESC Pompeia factory design, converted into a leisure centre with minimum and specific interventions, aimed at converting places with its new use (happiness and joy). In

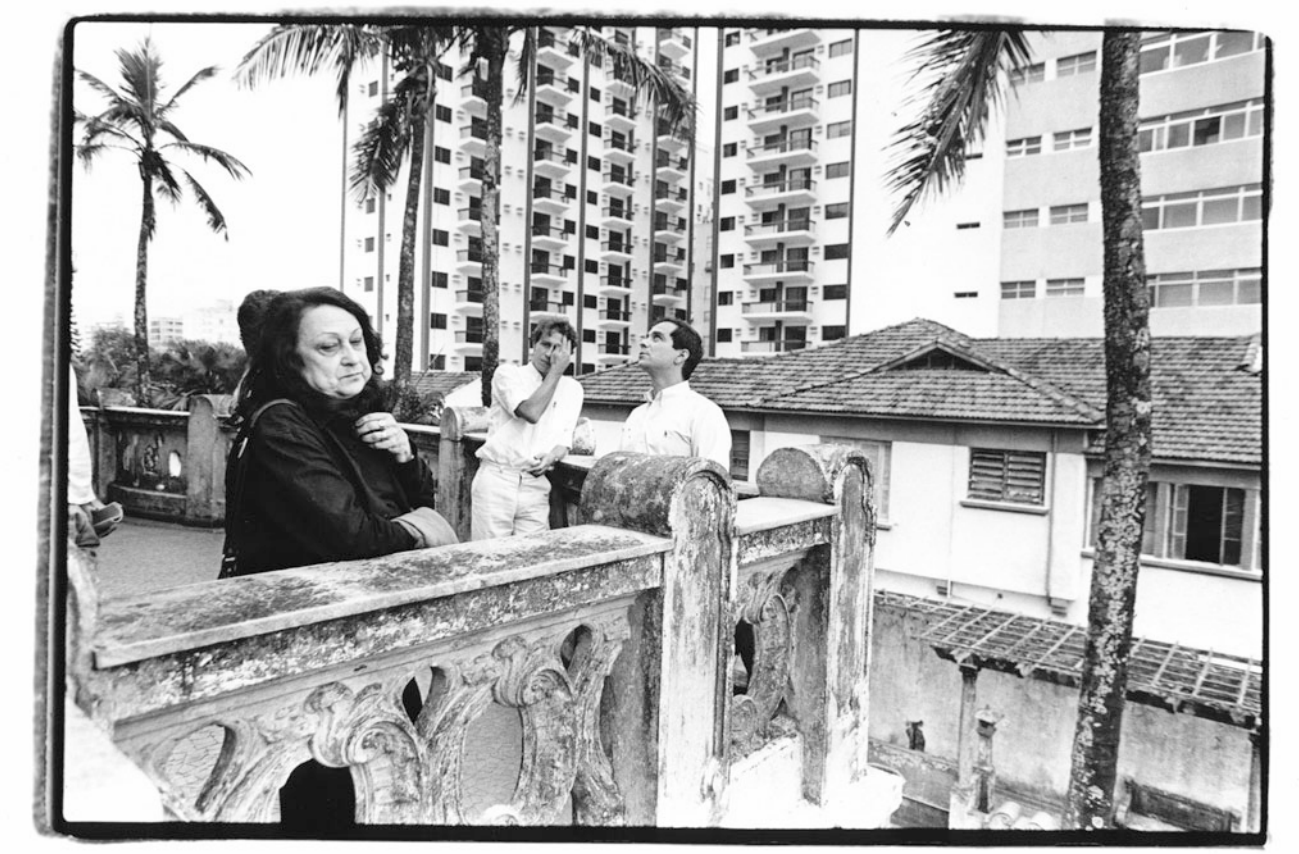

Fig. 1.3 Lina Bo Bardi's contemplating the new and old buildings (Courtesy Marcelo Ferraz)

accomplishing this aim, Bo Bardi applied all her skills in set and furniture design, looking to create pleasant scenarios for daily life.

Barry Bergdoll notes in our book's Foreword that it is time:

> to discern 'Lessons from Lina' in relationship to today's pressing issues of architecture and environment, sustainability, recycling, and developing an ethical design position in a world of diminishing resources and escalating challenges.

With the re-purposeful simple insertions, Bo Bardi left behind the "green" stair's contradictory spaces with salient instructive effects for others to upcycle, "re-fuse" or readapt. As well, in its reflection upon Bo Bardi's technical methods, the book's appendices include Ana Carolina Bierrenbach's conversation with the authors and Bo Bardi's timeline in Brazil (compiled by the editors).

Research shows that up to 90 % of the impact of a building or product is determined by the earliest design decisions about orientation, compact geometry (massing), shading and fenestration to minimise solar exposure and heat gain in summer. These are design strategies that the architects of pre-modern times knew well about because they had to be resourceful and practical.

The crisis of climate change made it obvious that we need a new conception of architecture in which good design and sustainable design are integrated and the same thing. Sustainability inevitably changes the way we think and design architecture, including its purpose, process and its reuse at the end-of-use of a building, precinct or neighbourhood.

While we explore how intelligent architectural concepts can provide liveable urban conditions for an ever-increasing world population, we also have to ask the following: how have our high-consumption lifestyles adapted to the needs for a future low-carbon society? Through, for instance, behavioural change in the use of energy, water, food, materials and the automobile? These questions have frequently been raised by Australian architect Glenn Murcutt, experienced in designing houses for extreme climatic conditions, who notes: "Life is not about maximizing everything; it's about giving something meaningful back" (quoted in Gusheh and Lassan 2008). In the context of urban generation, architecture is about tapping into one's senses, or in the words of Murcutt, "touch this earth lightly," an overt reference to an Aboriginal adage (Drew 1985; and Spanedda 2013). In the end, Bo Bardi received the Latin American

Prize at the 4th Buenos Aires Architecture Biennial, Argentina, and her main aim was to rehabilitate existing buildings or renew cities. Bo Bardi wrote:

> We are not going to touch anything, but we will touch everything…
>
> (Notes on Salvador's rehabilitation, 1986, quoted in Zeuler Lima 2013)

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Lina Bo Bardi at Guaruja in the early 1950s, near São Paulo (*Photo* Gregori Warchavchik)

Ouro Preto, Minas Gerais, a former Portuguese colonial town designated a World Heritage Site by UNESCO because of its outstanding Baroque architecture (*Photo* Steffen Lehmann)

View of the town of Ouro Preto, Minas Gerais (*Photo* Lehmann)

Gregori Warchavchik house, aka *Casa Modernista*, Rua Santa Cruz, São Paulo, 1928.
It is considered the first modernist building in Brazil (Warchavchik Foundation)

Frank Lloyd Wright visiting Rio de Janeiro in 1931,
seen here with Lucio Costa and Gregori
Warchavchik, at the opening of the
Nordschild House (Warchavchik Foundation)

Ministry of Education and Health (MES) building, Rio de Janeiro (1936-43), by Lucio Costa, in collaboration with Oscar Niemeyer, Affonso Eduardo Reidy, Jorge Moreira, Carlos Leão, Ernani Vasconcelos and Roberto Burle Marx (with Le Corbusier in an advisory role) (*Photo* Nelson Kon)

Pilotis system at the MES building (*Photo* Kon)

University of São Paulo Faculty of Architecture and Urbanism (FAU) building by
Vilanova J. Artigas, 1961-66 (*Photo* Kon)

FAU building, São Paulo (*Photo* Kon)

FAU building, São Paulo (*Photo* Kon)

No Ibirapuera Popular Art of Bahia State exhibition in 1959, São Paulo (Instituto Lina Bo e PM Bardi)

Elevation of the Glass House in Morumbi, São Paulo (*Photo* Leonardo Finotti)

Lina Bo Bardi at *Casa Vidro* (Glass House) in São Paulo, 1951

Glass House interior, São Paulo (*Photo* Finotti)

Glass House patio (*Photo* Finotti)

Glass House interior (*Photo* Federico Calabrese)

Glass House-patio (*Photo* Federico Calabrese)

Preliminary design of the MASP building

MASP exterior (*Photo* Lehmann)

MASP interior with rows of gilt–framed floating paintings set behind sheets of glass (*Photo* Finotti)

MASP Art Gallery, São Paulo, showing the new glass easel exhibition system (as Lina Bo Bardi had originally envisaged) (*Photo* Andres Lepik)

MASP interior (*Photo* Andres Lepik)

MASP Art Gallery, São Paulo (*Photo* Andres Lepik)

MASP Art Gallery, São Paulo (*Photo* Lepik)

MASP Art Gallery with cactus mantles, São Paulo (*Photo* Finotti)

MASP exterior with cactus mantles (*Photo* Finotti)

MASP's public space (*Photo* Lehmann)

View of the MASP building from Trianon Park in the 1970s

Aerial view of the MASP (*Photo* Nelson Kon)

MASP exterior (*Photo* Lehmann)

Exterior of the MASP (*Photo* Lehmann)

Open-air congregation space at the MASP (*Photo* Lehmann)

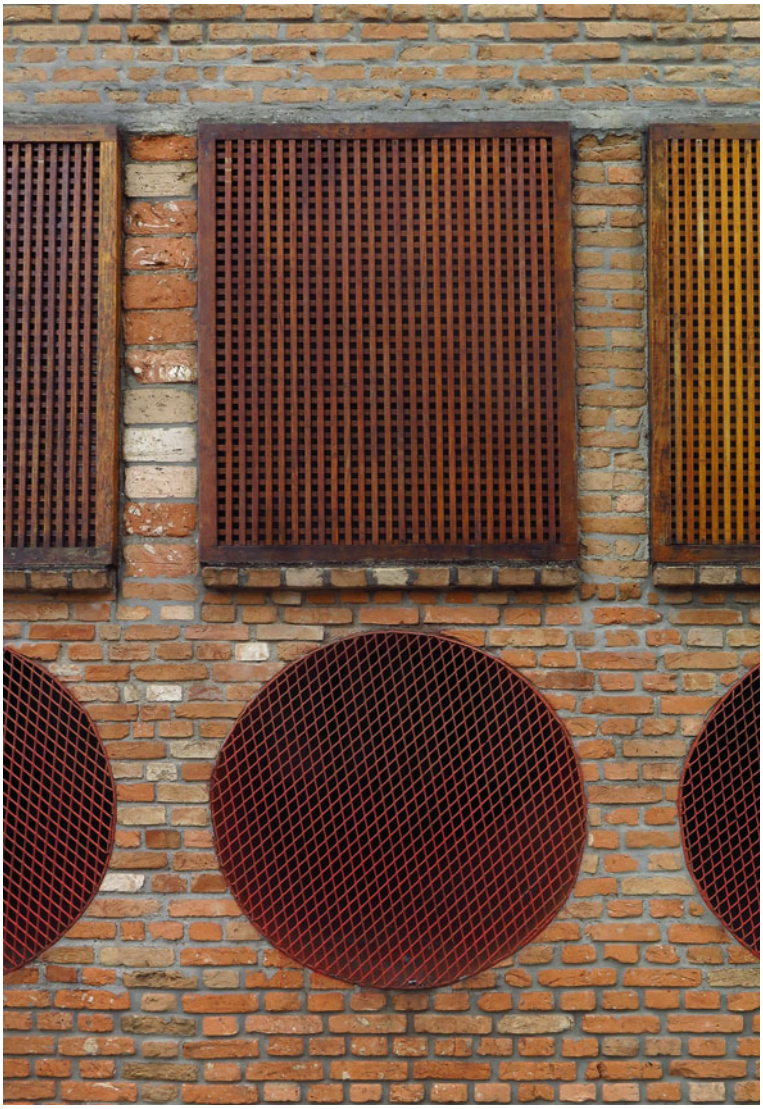
Main entrance to the MASP (*Photo* Lehmann)

Side view of the MASP (*Photo* Lehmann)

Aerial view of the MASP (*Photo* Finotti)

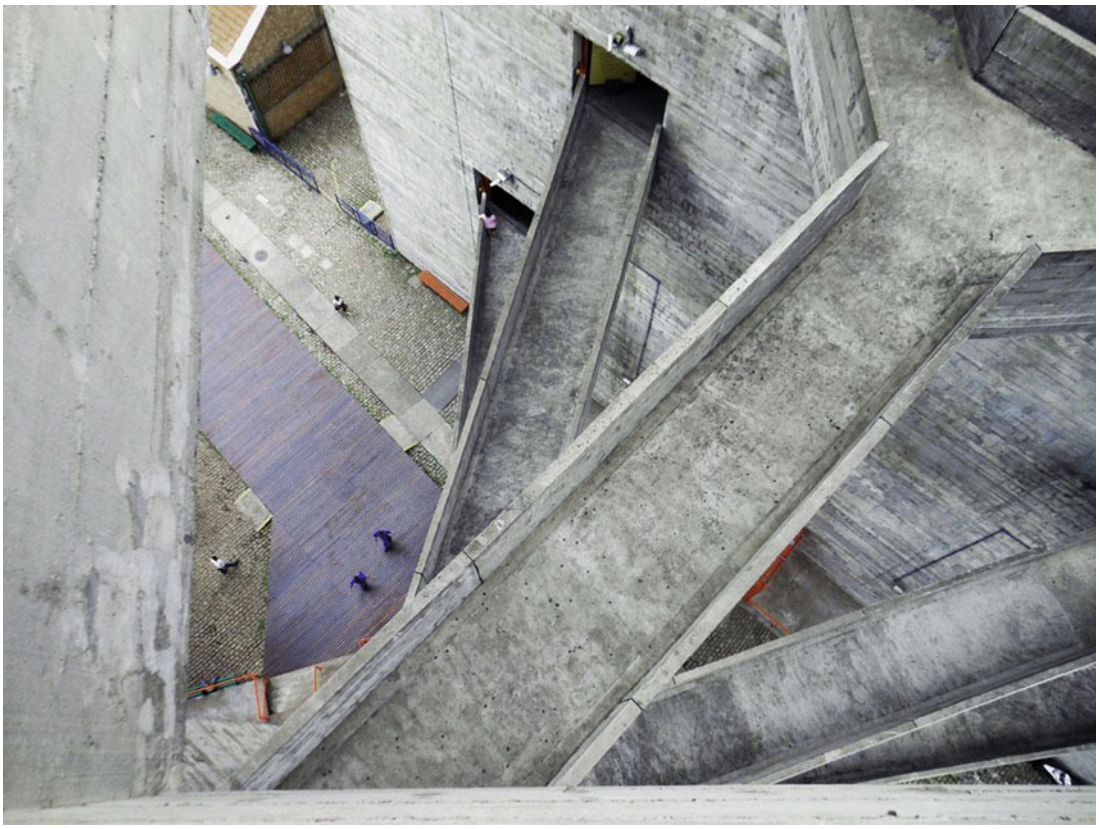
Exterior of the SESC Pompeia leisure complex (*Photo* Finotti)

Timber screens at the SESC Pompeia (*Photo* Finotti)



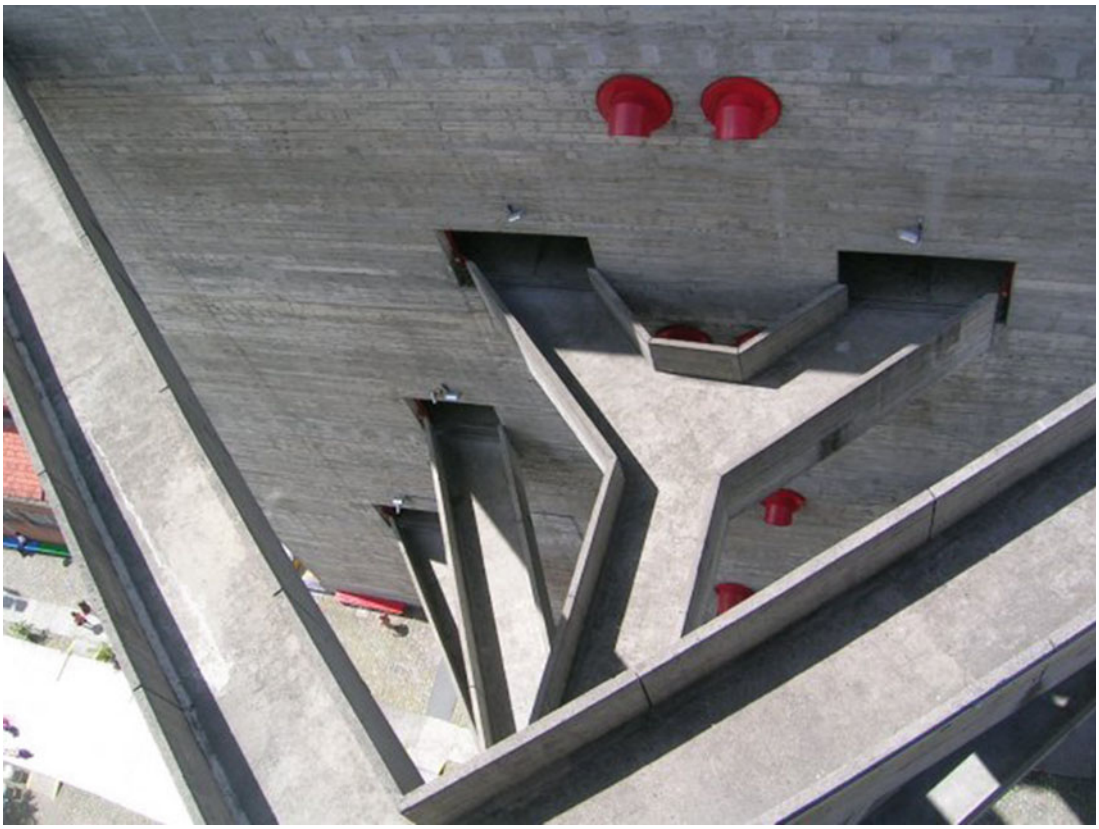
Timber screens at the SESC Pompeia (*Photo* Calabrese)

Junction between the old and new, SESC Pompeia building (*Photo* Federico Calabrese)



SESC Pompeia Leisure Centre in São Paulo. The concrete bridges between
the new towers connecting the sports facilities with change rooms (*Photo* Lehmann)

Exterior of the SESC new tower and concrete bridge (*Photo* Lehmann)



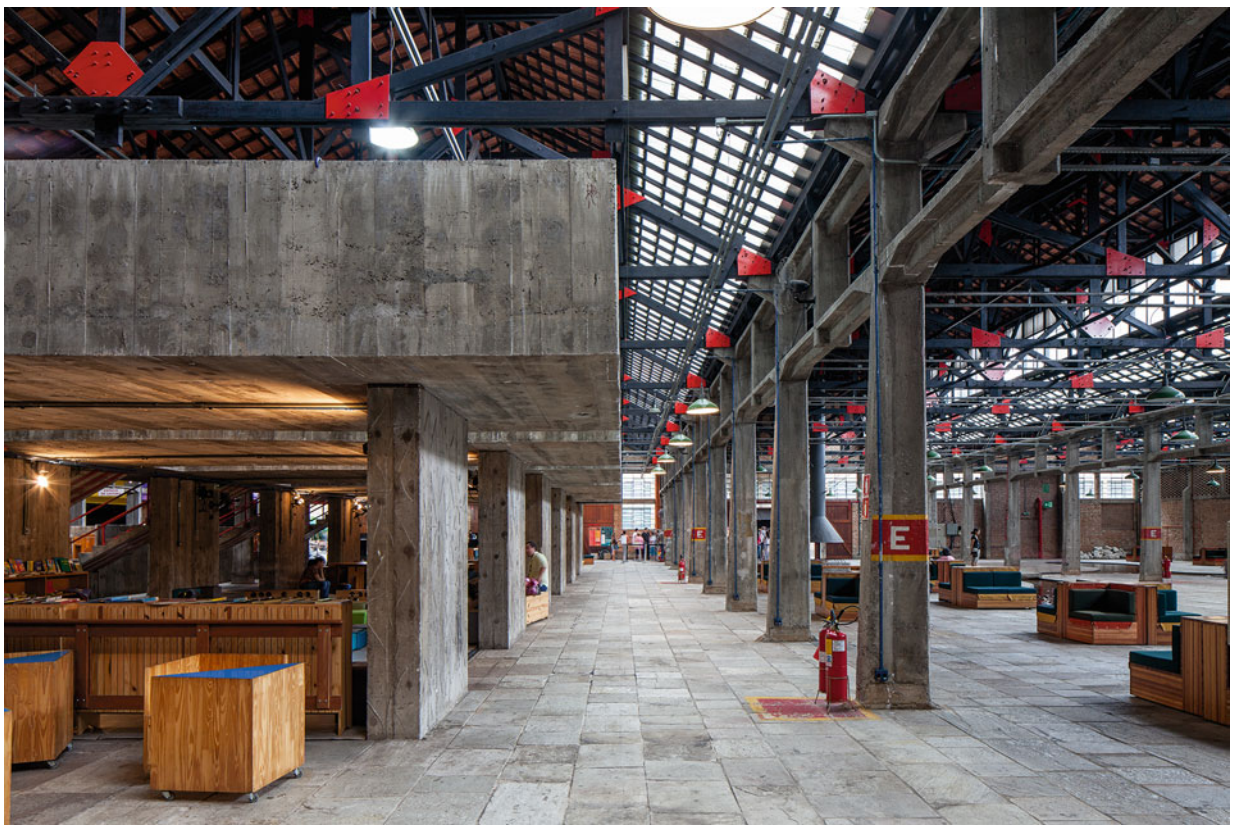
SESC Pompeia Leisure Centre in São Paulo. The concrete bridges between the new towers connecting the sports facilities with change rooms

Interior of the theatre at SESC Pompeia Leisure Centre in São Paulo (*Photo* Calabrese)

Interior of the SESC Pompeia Leisure Centre in São Paulo (*Photo* Calabrese)

The hearth of the SESC Pompeia Leisure Centre, São Paulo (*Photo* Calabrese)

Activity space at the SESC Pompeia Leisure Centre, São Paulo (*Photo* Calabrese)

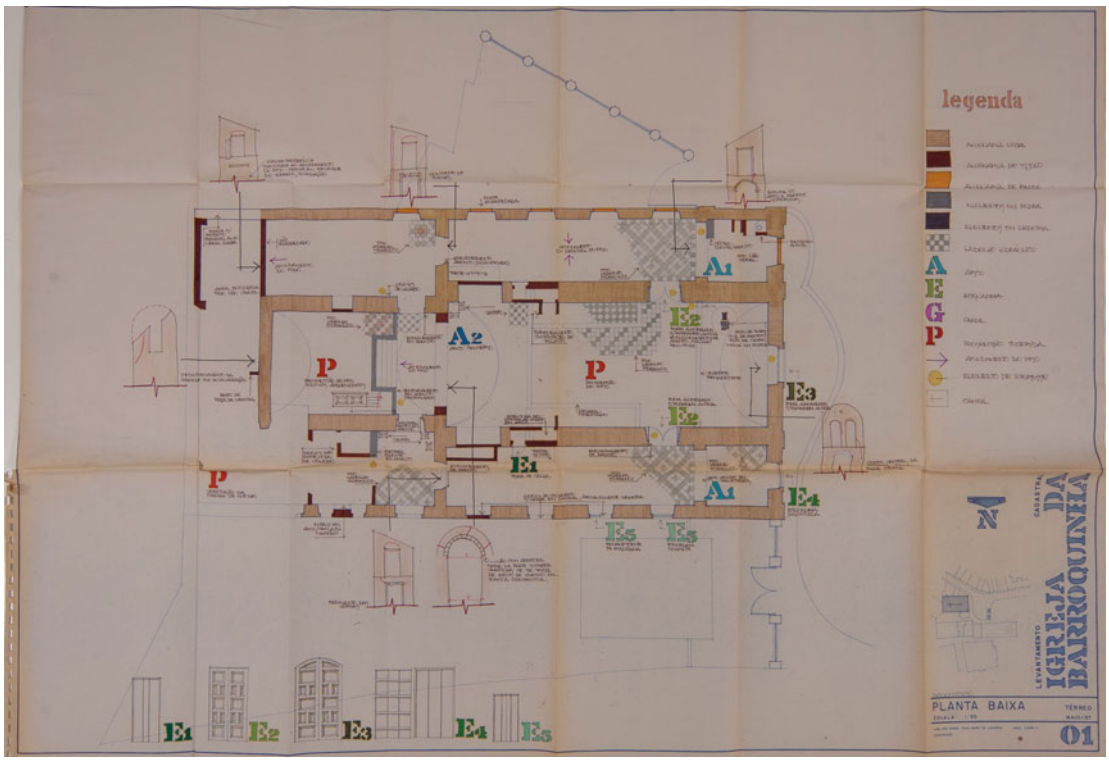


Interior of the SESC Pompeia (*Photo* Finotti)

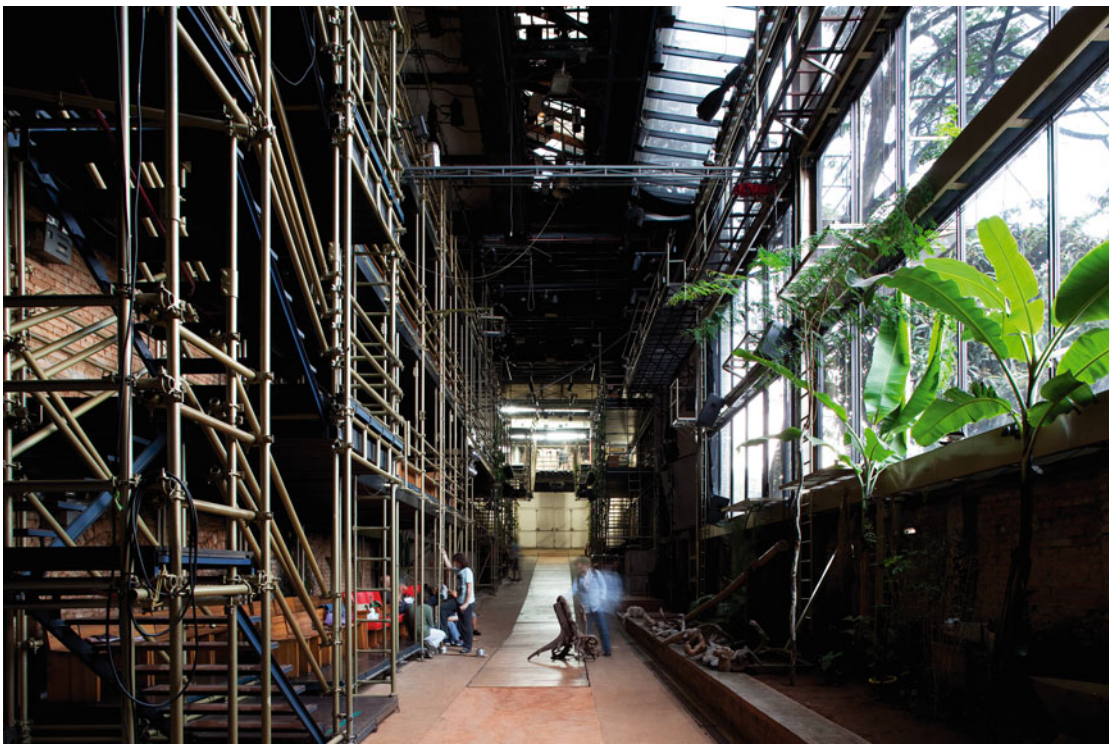
SESC Pompeia at night time (*Photo* Finotti)

Lina Bo Bardi's sketch of the landscape wall, SESC Pompeia (Instituto Lina Bo e PM Bardi)

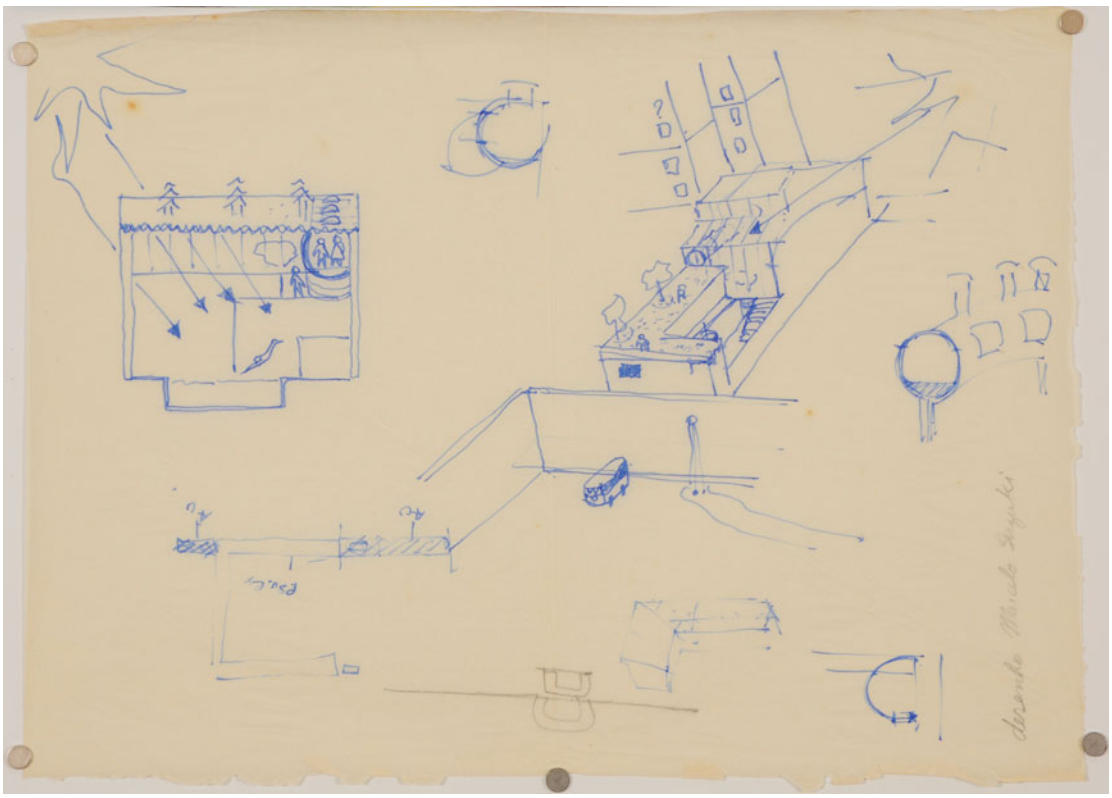
SESC Pompeia Leisure Centre in São Paulo. The concrete bridges between the new towers connecting the sports facilities with change rooms (*Photo* Lehmann)



Lina Bo Bardi's Plan of the door and window schedule of the Projeto Barroquinha (Instituto Lina Bo e PM Bardi)



Interior of the Teatro Oficina, São Paulo, 1980-1991 (*Photo* Finotti)



Lina Bo Bardi's preliminary sketch of the Teatro Oficina showing a person diving into a stream of water, suggestive of the ancient Greek Tomb of the Diver fresco at Paestum in Italy (Instituto Lina Bo e PM Bardi)

Bo Bardi's Studio at Morumbi, São Paulo, 1986 (*Photo* Finotti)

Espirito Santo Cerrado Church exterior showing slender eucalyptus trunks to encourage air to flow through the structure – a rustic *brise-soleil*, Uberlandia, Minas Gerais, 1976-1982 (*Photo* Finotti)

Espirito Santo Cerrado Church interior, Uberlandia, Minas Gerais 1976-1982 (*Photo* Finotti)

Keeping the Existing: Lina Bo Bardi's Upcycling and Urban Renewal Strategies

2

Steffen Lehmann

One of the most remarkable Brazilian architects in the 20th Century, Italian émigré Lina Bo Bardi (Rome 1914–São Paulo 1992) has recently been "rediscovered" and her heterogeneous and unusually diverse oeuvre been celebrated. Born in Italy and arriving in Brazil in 1946, multi-talented Bo Bardi was, as well as an architect, a furniture designer, urbanist, political activist, editor and writer and a curator of exhibitions. This chapter outlines the importance and benefits of Bo Bardi's adaptive reuse projects, which are part of her late work. Her strong engagement in the adaptive reuse of existing buildings (rather than only in new-built construction) marks a clear paradigm shift in thinking about the historical context and colonial structures in Brazil, as well as the commencement of adaptive reuse as an eligible strategy for sustainable urban renewal of the run-down Baroque city centres. In the 1970s, this introduced an entirely new approach to Brazil, as the previous period of heroic Modernism usually started with a "clean slate," involving the complete demolition of existing old fabric to make space for the new.

First, the chapter explains the important link between retaining existing buildings and sustainability, its positive environmental and social impacts. Adaptive reuse can frequently reduce the negative impact of construction on the environment and the depletion of non-renewable resources; in addition, it maintains the place identity. The cases of adaptive reuse projects in Salvador and São Paulo (realised between 1977 and 1992) encapsulate the new focus on urban rehabilitation of the run-down historical districts and their Afro-Brazilian cross-connections. During this time, Bo Bardi's aesthetic inspiration and search for meaning led to her own personal interpretation of the vernacular and colonial.

Introduction

Preceding studies have sought to identify the architects and theorists involved in the making of modern identity of Brazil, and the mechanisms that created such identity, from Lucio Costa and Roberto Burle Marx, to Oscar Niemeyer and Vilanova Artigas (Mindlin 1956; Bullrich 1969, Joedicke 1979; Lehmann 2004). The history of architectural modernism in Brazil is one of exchanges, transfers and cultural crossovers with the developed world and with the Afro-Brazilian culture (especially with the culture of the slaves' origin countries in western Africa, such as Benin, Mauretania and Angola). And one of the difference between the various cities, especially between São Paulo, Rio de Janeiro and Salvador (Bahia). In the 1940s, São Paulo became the centre of Brazil's economy and grew rapidly: by mid-1950s it had already 2.5 million people and by 1970 São Paulo counted 6 million inhabitants (today, São Paulo is the most multicultural city in South America, producing over 11 % of Brazil's entire GDP; São Paulo is a megalopolis of 19 million people, the world's fifth most populous city, with an ever expanding urban sprawl as it runs the engine of Brazil's economy; but São Paulo is also a divided city: between rich and poor; and between gated condos and favelas).

After its arrival in the 1930s, Modernism quickly flourished in Brazil and led to its climax in the construction of Brasilia, the new capital that was—despite being so far away from Europe—built at a monumental scale and strictly to the urban zoning principles as advocated by the *CIAM* and the 1933 Charter of Athens (Evenson 1973; Deckker 2001; Piccarolo 2013) (see Fig. 2.1).

In the 1950s, Brazilians watched the creation of their new capital Brasilia—without doubt one of the most utopian projects of the Modern Movement—and witnessed the rapid transformation of Brazil's fast growing cities, while large parts of the population still lived in precarious accommodation and poverty. The development of architectural design at that time was particularly bound to the private single-family

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Fig. 2.1 Brasília, the federal capital of Brazil is located atop the Brazilian highlands in the country's Centre-western region. It was founded in 1960, to serve as the new national capital, planned by Lucio Costa in 1956 in order to move the capital from Rio de Janeiro to a more central location. The city's design divides it into numbered blocks (superquadras) as well as sectors for specified activities, such as the Hotel Sector and the Banking Sector (*Photo* Nelson Kon, 2006)

house, belonging to the new, emerging middle-class that began to flourish, following the economic boom in the late 1950s (Lara 2008). During this time not only Brazil, but all of Latin America went through deep change. Barry Bergdoll notes that "the period 1955 to 1980 was a period of intense creativity across Latin America and the region that occurred despite violent political and economic upheaval. It was a very complicated period of dictatorships and political turmoil coinciding with extraordinary architectural production" (MoMA catalogue 2014).

Some of the architects' modernist houses (including Bo Bardi's own Glass House, 1949–51) re-elaborated the traditional courtyard layout, incorporating carefully selected local plants, while others elaborated solid–void relationships in an almost sculptural manner (for instance, houses by Artigas and Niemeyer). The *Casa de Vidro* (aka Glass House) was still in a modernist style and influenced by Italian rationalism, keeping up with the international trend. This courtyard house sits on slender circular columns, which allows the lush landscape to flow under the building. Other houses built in this era in the United States included modern buildings known to Bo Bardi from publications, such as: the Farnsworth House by Mies van der Rohe, 1947; the Case Study House No. 8 by Charles and Ray Eames, 1949; the Glass House by Philip Johnson, 1948; and a couple of courtyard houses built by Bernard Rudofsky that were featured in the *Brazil Builds* exhibition (1940–42). The plans of these houses (all pre-dating Bo Bardi's Glass House) were published widely around the time when Lina Bo Bardi and her husband, Pietro Maria Bardi (1901–1999) were planning their own new house in São Paulo (see Figs. 2.2a and 2.2b).

In the 1940s and 50s, Brazil was eager to overcome the "dark ages of colonialism" and instead build in a modern, contemporary style, defining the idea of the modern Brazil that expressed an optimistic forward-looking identity for the future of the country—also supported by politics, such as Getulio Vargas' politics of the *Estado Novo* (the New State)—creating a climate of optimism that helped vanquish the colonial past, the Portuguese baroque and the previously dominant French style of the nineteenth century (Le Corbusier 1930; Goodwin 1942; Bullrich 1969; Acayaba and Ficher 1982; Kamita 2000; Bruan 2002; Cavalcanti 2003; de Oliveira 2006; and McGuirk 2014). During this period, architecture's task was primarily to support the formulation of a new national identity of the young nation. In this climate there was little interest in maintaining and celebrating the old colonial architecture; the historical city centres fell in disuse.

Her long-time collaborator Marcelo Suzuki recalls that Bo Bardi referred numerous times to the importance of MOMA's *Brazil Builds: Architecture New and Old, 1642–1942* exhibition (1942–43), as "an announcement of something *unique* in comparison with the *known* world, the *cultured West*, and as a publication and exhibition that had changed everything" (Suzuki 1994).

With regard to the Modern Movement, Brazil has been particularly privileged in two important ways; firstly, the influx of immigrants from Europe introduced a cultural openness to and acceptance of the cubic, orthogonal compositions of European modernism; and there was little resistance to the foreign, "the imported" (Lara 2008). One may claim that Rio de Janeiro (always more French influenced) and São Paulo (more Italian in immigrant population

Figs. 2.2 Soon after arriving in Brazil, Lina Bo Bardi commenced designing the couple's own house in São Paulo's suburb Morumbi: an elegant courtyard house called Casa de Vidro with volumes arranged around the exterior space, 1949–51 (*Photos* Federico Calabrese, 2015)

and character) are both cities where, until today, a normative modern international architecture has accounted for a large part of the urban fabric. Beside Bo Bardi, a number of Italian architects had emigrated from Italy to São Paulo, where they enjoyed a productive career (for instance, Rino Levi, Gregori Warchavchik, Daniele Calabi and Olavo Redig de Campos all studied architecture at the Sapienza University in Rome in the 1920s before leaving for Brazil).

Immigrants also supplied the building boom with cheap construction labour. With the wide-spread availability of reinforced concrete, the growing demands of booming cities for large new infrastructure and public buildings could be met in a short time. Concrete became the typical, characteristic material in all Brazilian regions and was widely used for the new modern architecture (Lehmann 2014). Secondly, Brazil is blessed with a warm climate for most of the year, and this, together with the varied topography of its cities, has had a mediating influence on modern abstraction (Bergdoll/MoMA 2015). But in contrast to her earlier striking buildings that Bo Bardi designed in São Paulo (such as the Casa de Vidro and MASP), her late work in Salvador, Bahia is based on careful adaptive reuse of existing buildings and integrated into the historical context of the historical Baroque city (Ferraz 1993, 11). This chapter argues that the renovation works by Bo Bardi mark the beginning of a particular version of "sustainability" in modern Brazil, in the late 1970s.

In the 1980s, Lina Bo Bardi made adaptive reuse of existing brownfield sites and regeneration of derelict urban quarters fashionable in Brazil. From the rejuvenation of a disused barrel factory into a public leisure centre (SESC Pompéia in São Paulo) to the renewal of the historical Pelourinho district (the city centre of Salvador, Bahia), under-utilized, abandoned or disused buildings and sites have been rediscovered as a precious resource that can be transformed towards new usages, and as a result deliver significant social benefits. *Casa do Benin* and *Casa do Olodum* (both in Salvador) are good examples of the various specific restoration and reuse projects carried out by Bo Bardi for the rehabilitation of the historical centre. Here, she used adaptive reuse as a design strategy to deliver resourceful projects that maintained the identity of place.

Bo Bardi's Path from Modern Avant-Garde to Vernacular Regionalism

Mid-twentieth century Italy gave birth to some of the world's most radically architecture (just think of Giuseppe Terragni, Gio Ponti or Carlo Scarpa), but different from Carlo Scarpa's subtle approach to the adaptive reuse of existing buildings, Bo Bardi broke away from the European tradition. While both, Bo Bardi and Scarpa took inspiration from Japan (both travelled several times to the Asian country, studying its architecture), both left a compact yet unusual and powerful body of works behind, and both worked in different unusual locations: Scarpa worked in Venice (and not in Milan) and Bo Bardi in Salvador (and not in Rio de Janeiro)—the resulting architecture could not be

more different. Where Scarpa's focus was on honouring history and transcending it through an elegant obsession with the detail, Bo Bardi was not too much interested in the use of precious materials or refined details; she accepted rough insertion and contrast as design strategies while maintaining the structures' original integrity.

In Brazil, Bo Bardi was never part of the main group of architects in São Paulo. She was not accepted into the male-dominated "elite club" of the University of São Paulo. When I met with Lucio Costa, Roberto Burle Marx and Paulo Mendes da Rocha in the late 1980s, she was hardly mentioned in our conversations. Bo Bardi was an outsider, interested in doing "her own thing", and often described as prolific and non-conformist (Zeuler Lima 2013; and AV 2015). She had a fascination with Brazilian folk art and popular culture particularly that of the country's heavily Africanized northeast, Bahia—at a time when her Paulista colleagues were still under the Corbusian influence. This influence was strong and prevailing since Le Corbusier's two visits to Brazil (in 1929 and 1936; Le Corbusier had published his *Precisions* manifesto in 1930, following his Grand Tour to Latin America and his participation at the Southern American conferences in 1929).

In unravelling the link in Bo Bardi's unusual work between regional cultures, colonial heritage, what became apparent was her adaptive reuse potential of existing buildings. These emerging principles of ecological architecture that emerged in the early 1970s and 80s is what we call today "sustainable architecture".

The globalising forces of international modernism are believed to have eliminated differences, obliterated individual identities and led to more homogeneous architectural forms worldwide. Of course, we have to keep in mind that architects, as creators of "constructed identities", have in reality only limited powers to shape society or change cities. Peter Herrle has written extensively about the loss of regional identity and its association with the built environment, noting: "The loss of local coherence and identity is something that cannot be counterbalanced by just one professional group (the architect). Identities in architecture have always been a blend of different streams amalgamating in a given culture at a given point in time" (2008, xi). Chris Abel points out that identities in architecture are being "constructed", and do not only depend on cohesiveness or a system of shared values; diversity is part of the pattern of local architecture, and plays an important role in the making of this identity (Abel 1997).

In the case of North-eastern Brazil, much of the identity has been influenced by African culture; and these cultural influences originated from the African slaves who were brought to Brazil by force, and imported their various cultures to their new homeland (Freyre 1986). The importation of slaves to Brazil began midway through the 16th century and continued well into the 17th and 18th centuries. The first Portuguese settlement in Brazil was established in 1532 and the colonists were heavily dependent on indigenous slave labour during the initial phases of establishing the settlements. In the end, Brazil imported more African slaves than any other country: an estimated 4.9 million slaves from Africa came to Brazil during the period from 1501 to 1866 (Freyre 1986). Slave labour was also the driving force behind the growth of the Brazilian sugar industry, which was the primary export of the colony to Europe from 1600–1650; from 1690 on, the mining of gold and diamonds was added, further increasing the importation of African slaves to power this newly profitable market. The rise of the coffee industry in the 1830s further enticed expansion of the slave trade. Alone in the 18th century, over 1.7 million slaves were imported to Brazil from Africa (Freyre 1986).

Brazil was the last country in the Western World to abolish slavery and the slave trade, in 1888. By then, an estimated four million slaves had been imported from Africa to Brazil (Bergad 2007). Today, the cultural influence is still visible in Bahia, such as Carnival and the drumming band *Olodum* in Salvador, which goes back to musical protest as a product of slavery and black consciousness that has slowly grown into a more powerful force and awareness of its cultural roots. For Bo Bardi it was interesting for her to explore how the cultural dynamics of this rich Afro-Brazilian history are reflected in the urban landscapes of Brazil.

After arriving in São Paulo and adopting Brazil as her new home country in 1946, Bo Bardi soon embraced the traditional cultures of her adopted country. She fell in love with the regional culture of North-eastern Bahia and learned to appreciate the colonial architecture ("discovering the true Brazil as authentic regional expression", as Bo Bardi used to say (quoted by Marcelo Ferraz 1993, 12). From 1959 to 1968, she moved to Bahia and spent most of her time in Salvador, renovating and adaptively reusing several baroque buildings, which has been described as the beginnings of the Brazilian sustainability movement and heritage conservation (SPHAN, the Brazilian equivalent of the National Trust, was founded in 1936 by Lucio Costa and others and grew significantly in the 1950s; Lucio Costa was also head of the country's Heritage Trust, IPHAN—Institudo do Patrimônio Histórico e Artístico Nacional) (Costa 1995; Lehmann 1998).

Describing her work as "anchoring modernism in the region", Bo Bardi organised numerous exhibitions of Bahian, Afro-Brazilian cultural artefacts. In her own home, the *Glass House*, she lived in the midst of an eclectic collection of locally produced objects and artefacts, surrounded by lush nature and the intense Brazilian light that created a unique atmosphere. During this time, she arguably became "more Brazilian" than the Brazilian people themselves. Bo Bardi's

multidisciplinary activities went across architecture, publishing, curating and scenography; for instance, she organised a number of exhibitions of Brazilian-produced objects, including indigenous utensils, to display the immense creative potential that existed in Brazil.

The beginning of sustainable architectural and urban design within Brazilian modern architecture is an important point as it also represents a turning point in the appreciation of the African-influenced cultures in Brazil's Northeast. The adaptive reuse projects by Bo Bardi in Salvador identify the beginning of this new approach towards cultural heritage and urban renewal, including the re-appreciation of "the everyday of Afro-Brazilian culture" and the recognition of the high value of ordinary vernacular architecture within Brazil's regional culture.

The city of Salvador de Bahia was founded in the 16th century (1549) as the seat of the Portuguese government in the Americas and served as Brazil's first capital for more than two centuries. However, in the 1950s Bahia was seen as traditional and backward. Bo Bardi frequently emphasized vernacular buildings and artefacts from Bahia, because they often responded well to the environment and climatic conditions of the region, and thereby provide valuable ideas and clues for a modern architecture that is connected to its climate and geography; for example, she observed that they tend to have low ceilings in cold climates and high ceilings in hot climates, a concern widely ignored by modernism.

Around this time, Bo Bardi also discussed her interest in African cultures, religions and the Condomble' traditions with French-born anthropologists Roger Bastide and Pierre Verger, who regularly visited Salvador between 1940 and the late 1950s (Araujo 2013). After the completion of the MASP in 1968 she had moved for a couple of years to Salvador (leaving São Paulo during the harsh years of the military dictatorship), where she was close to important cultural thought leaders, which influenced her own thinking and further inspired her interest in cultural traditions. Olivia de Oliveira describes Bo Bardi's interest in the spiritual and the symbolic as a "form of resistance" (2014, 162); and there are also the ethical aspects to Bo Bardi's work, what Angela Starita describes as "the ethical use of the vernacular" (2016).

"Vernacular buildings are usually made of locally sourced construction materials, employ local, mainly renewable sources of energy, and adopt construction practices that favour recycling and respect for nature. (…) The reuse of construction materials is a feature of vernacular architecture" (Edwards, 2014, 22). Regions are always defined through their local materials, tectonics and particular typologies, and the architectural character defining regional spaces, in turn, shapes, retains and enhances social identity (Semper 1860; Frampton 1983/1995). Regional architecture becomes a dynamic manifestation of new and developing ideas through hybridisation and integration (a phenomenon also described by Bernard Rudofksky in 1964 in *Architecture without Architects)*.

Regional forms are sometimes seen as conservative manifestations of static cultural traditions that are rigid and maintained from one generation to the next, lacking innovation (Lefaivre and Tzonis 2003). However, in the case of Bo Bardi's working method, regional architecture is respected as the result of a set of dynamic forces, the outcome of a process of integration of diverse cultural, environmental, social and technological influences. Just as a simplistic binary that opposes modernism and regionalism would be wrong, it would also be incorrect to say that Bo Bardi was first a modernist and then became a regionalist. As we know from her own writings, she has clearly been thinking about these different concepts for many years, already before putting them into her practice, and, even then, there is a mix of modernist and vernacular approaches (as well illustrated in the SESC Pompeia project).

Thus, it is fair to say that regional architecture is the result of dynamic forces, the outcome of a process of integration of diverse existing cultural, technological and environmental influences, where outside influences and innovation have their impact diluted by local conditions. Botz-Bornstein has noted the existence of "different Critical Regionalisms" (2015). Brazil's dynamic regionalism distanced itself from the naïve utopianism of the early heroic Modern Movement, while the buildings responded much more pragmatically to the specific conditions of the tropical climate, the harsh light and the particularly availability of materials (Lehmann 2008).

Defining the Link Between Adaptive Reuse and Sustainability

Modernity and sustainability are closely intertwined in the challenge of creating better places to live and work. The existing built fabric represents a high value that offers a resource in terms of social, economic and environmental sustainability. There is an opportunity and duty to preserve the existing fabric and reuse buildings which have lost their original function, which are physically obsolete, or which no longer meet today's ever-more demanding standards. It is part of the contemporary agenda of urban renewal to reuse material and space, realise spatial and functional transformations and update regulations concerning fire, user safety, energy efficiency and environmental comfort.

Linking adaptive reuse of old buildings with sustainability, there can be significant positive environmental and social impacts from conversions of existing buildings, beyond the sheer heritage value. The case studies in Salvador and São Paulo reduced the negative impact on the environment and the depletion of non-renewable resources. However, until today, the urban dimension of Bo Bardi's

work in Salvador and São Paulo has not been sufficiently discussed or appreciated. Besides her social approach, there is also a strong environmental position that laid the foundation of sustainable urban renewal in Latin America; and Bo Bardi's sustainable and socially-conscious design method is directly informed by regionalism. In addition, it's a strategy that retains the embodied energy of the existing urban fabric and exemplifies the cultural significance of these structures: keeping the existing buildings maintains the cultural identity and exemplifies the tectonic evolution of the vernacular architecture.

In 1973–74, the challenge of the ecological crisis emerged as a new issue, following the first *Oil Crisis*, and the publication of the pivotal book *The Limits to Growth* (Meadows et al. 1972). Both, the event and the text had many short-term and long-term effects on global politics and the economy, and generated a fervent debate (also between Brazil's intellectual circles). *The Limits to Growth* revealed that unlimited growth was impossible, given finite resource supplies and population growth, marking a time when the ecological architecture movement emerged.

Bo Bardi's adaptive reuse of existing buildings therefore marks a paradigm shift in thinking about historical structures in Brazil and the commencement of renovation as eligible strategy for entre urban precincts. This was an entirely new paradigm, as the previous period of Modernism usually started with a "clean slate", after the complete demolition of the existing old fabric to make space for the new (Giedion 1941).

Following her early modernistic and structuralistic works, such as the Glass House or MASP Museum in São Paulo (both still inspired by the International Style and Structuralism), the late thoughtful work of Bo Bardi is of an entirely different quality: recycling, up-cycling and adaptive reuse is applied as an urban design strategy where the *New* sits comfortable side-by-side with the *Old*, without ever imitating the existing. Thus, Bo Bardi created her own continuation between dynamic vernacular and the modern avant-garde (Lehmann 2014, 142).

In regard to the resourcefulness and reuse, Zeuler Lima notes that "Bo Bardi's social and ethical awareness, and her talent for making do with scant resources—honed during her native Italy's World War II devastation—speaks to our anxious, solution-seeking era" (2013, 82).

From the rejuvenation of a disused, neglected barrel factory into a highly popular public cultural and leisure centre (SESC Pompeia in São Paulo, 1977–86), to the renewal of the historic Pelourinho district (the old Baroque centre of Salvador, 1986–92), such underutilized, abandoned or disused buildings and quarters are seen as precious resources. These can be transformed towards new usages and offer significant environmental and social benefits. Two cultural centres, *Casa do Benin* and *Casa do Olodum* (1987–89, both in Salvador) are good examples of the various specific restoration and reuse projects carried out as part of the rehabilitation of the historical centre, where new circulation systems and programs were carefully inserted into existing structures (de Almeida Lima 2013). The insertions of new structures respect rather than mimic its historic setting.

Adaptive reuse refers to the process of reusing an old existing building or site for a purpose other than which it was built or designed for. Design for reuse and durability includes the ability to satisfy changing user needs over time, emerging economic factors and complexity, and the "loose-fit" ability to integrate new technologies (see Table 1).

Reuse, recycling, recovering and remanufacturing have all entered our vocabulary. To reuse (for example a building) is to use an item again after it has been used. This includes conventional reuse where the building is used again for the same function, and adaptive reuse, where it is used for a different function. In contrast, recycling is the breaking down of the used item into raw materials, which are then used to make new items. Thus, the most sustainable building is the one that already exists.

Adaptive reuse, also known as "up-cycling" of buildings (or repurposing), is the process of taking disused buildings that are now unwanted for their original function and transforming them again into a useful building (this is different from recycling, where the building materials are broken down to their component parts and re-manufactured into new parts, such as walls or floors). Adaptive reuse is also different from conventional reuse, where the product is used in its original purpose again.

Table 1 The typical life-expectancy of different elements in the built environment (after: McDonough and Braungart, 2003)

Typical life-expectancy of different elements	
Commercial interiors	2–3 years
Building interior finishes	5–10 years
Building services	15–20 years
Building's usage	30 years
Building's structure	50+ years
Urban infrastructure (roads, railways)	100+ years
Cities	500+ years

Bo Bardi's concept is quite simple: retaining as much of the existing building fabric as possible, working within the original envelope, providing new insertions such as staircases, to improve the circulation. Similar to today's Burra Charter, which recommends to do "as much as necessary, and as little as possible": all new work is made to read differently from the existing fabric so that the important qualities of the building's past have been retained (such as the rich texture of the stonework and brick walls).

Through adaptive reuse of derelict, unoccupied buildings, these can become again suitable sites for many different types of use. Along with brownfield sites' reclamation, adaptive reuse is seen by many as a key factor in the reduction of urban sprawl and construction waste. The increasing waste generation from construction and demolition is a growing worldwide concern. Instead of demolition, extending the lifecycle of buildings through their up-cycling and reuse is right at the core of any sustainability concept. By reusing an existing structure the energy required to build these spaces is lessened, while the embodied energy in the building is maintained and the amount of new materials required for construction reduced; at the same time, the material waste that would come from destroying old buildings is also reduced (Lehmann 2016).

Much of our existing building stock predates modern energy standards and it is estimated that 80 percent of buildings in existence today will still be there in twenty years' time. It is therefore the physical improvements to our existing buildings and neighbourhoods that will really deliver the emission reductions needed. Upgrading the existing building stock is always a simple way to address inefficiencies and a secure way to reduce carbon emissions.

Industrial buildings and warehouses are frequently best suited to adaptive reuse, as they offer the maximum flexibility and high ceilings. Adaptive reuse can also be controversial if there is a blurred line between façadism (for example, only keeping a small token part of the existing building, such as its façade wall), or a compromise with historic preservation to serve heritage policies; in addition, the cost of conversion can be prohibitive high, making it impossible to keep the existing structure. Bo Bardi's project have always avoided this trap and are strong evidence for the potential of true adaptive reuse. It was always very important for Bo Bardi to know exactly how the local community would benefit from the reuse of once abandoned sites or buildings (Whyte 1980; Abel 1997). She recognised the importance of the factory space and instead of demolition, she proposed to maintain it—a novelty in Brazil at this time.

Repurposing of old buildings can also be a response to financial limitations. Today, local governments often provide financial incentives for adaptive reuse, as there are many criteria that can affect the economic return of adaptive reuse (for example, the increased risk of hidden costs in reusing older buildings and the danger of unknown contamination) when compared with new-built. Factors such as the reuse of materials and resources as well as a lesser need to involve energy, both in terms of labour and machine powered, can effectively decrease the funds needed for adaptive reuse. Determining the balance of how the several effects of adaptive reuse interact is often best accomplished by a formal lifecycle assessment (Ward 2012).

Implementing emission-reducing retrofits and gaining a better understanding of the actual performance benefits is the next step. Retrofitting and modifying existing buildings and systems to greatly improve energy efficiency through relatively simple measures (through insulation, high performance glazing and so on) represent the lowest cost route to reducing energy demand and carbon emissions. It is therefore beneficial to monitor and track the improved energy performance of upcycled buildings, so that the financial basis for retrofit could be incentivised by rewarding measured success (Lehmann 2010).

Upcycling Buildings and Repurposing Abandoned Sites: Case Studies in Salvador and São Paulo

The regeneration of former industrially used sites and the careful redevelopment of disused, derelict brownfield sites and buildings are a basic part of sustainable urban development. The presented projects exemplify well the application of Bo Bardi's adaptive reuse principles. The projects that are of particular relevance to her sensitive adaptive reuse work are:

- **SESC Pompéia in São Paulo, 1977–78 and 1982–86** (Stage 1 was completed in 1978)

The SESC Fábrica da Pompéia cultural and leisure centre is one of Bo Bardi's most important projects and her largest one. Over several stages, a disused steel barrel and refrigerator factory was transformed into a public cultural and sports centre. Instead of demolition, the formerly industrial precinct is transformed into a modern public facility. The existing ensemble of older industrial buildings had a specific authentic period character through its brickworks, detailing of the roofs and other features of the constructed eras that newer or reconstructed developments would have lacked. Bo Bardi carefully extended the reused ensemble with new buildings, such as a concrete tower of vertically stacked volley-ball fields, heightening the awareness of the "new". The cloud windows are evidence of her inventive playfulness (see Figs. 2.3 and 2.4).

Figs. 2.3 and 2.4 The cultural and leisure centre SESC Pompéia, São Paulo (1977–86), making use of a former factory and extending it with a beton brut tower. Lina Bo Bardi also designed the simple timber furniture; a sensitive adaptive reuse of the former steel barrel factory into a highly popular community place (*Photos* supplied by the author)

Figs. 2.5 and 2.6 Lina Bo Bardi with André Vainer (*left*) and Marcelo Ferraz (*right*) at SESC Pompeia, São Paulo, 1986. Bo Bardi's addition to the site were two imposing towers made of off-form concrete (*Photo* Eduardo Simões). *Right* The new water tower, SESC Pompéia, São Paulo, 1984 (*Photo* Marcelo Ferraz)

The determining criteria for the reuse of the old factory ensemble included:

- The societal value of the site and its importance to the community of workers that used to spend their lifetime on this site.
- The historical importance of the site, in this case especially the role of the former factory in the community's understanding of the past.
- The potential for the reuse of the particular site. The physical damage was small and the site was ideal to support its future use as centre for culture and sports.

The project that most clearly exemplifies Bo Bardi's break with modernism is the cultural centre SESC Pompeia: this adaptive re-use and extension of a former factory was environmentally sensitive and poetic at the same time, creating an assemblage and topography of old and new (SESC is the

Serviço Social do Comércio, a union-led chain of leisure centres for Brazil's working class). There are various scales of intervention but the "new" is always respectful of the existing buildings and structures, designed with great precision and without imitation. The SESC Pompeia cultural, sports and leisure/recreational centre expresses Bo Bardi's core belief in an architecture that serves the masses without condescending to them. Inspired by San Francisco's renovated Ghirardelli Square (which was the first major adaptive re-use project in the United States, opened in 1964), the multi-use compound is like a village assembly of spaces and includes a swimming pool, a theatre, and exhibition galleries.

The creation of such a diversity of interesting public spaces for the working people also contributes to the health of urban dwellers, which improves with the level of access to public open spaces.

The SESC Fábrica da Pompéia is considered as a milestone in Bo Bardi's work: the conversion of the 1920s steel barrel and refrigerator factory into a very successful, much-loved leisure centre: it preserved the character, intrinsic substance and memory of the past through the reuse of the factory buildings. Initially, the original factory was due to be demolished and the new SESC Pompéia would have replaced it. Bo Bardi, however, suggested that the factory be kept and not demolished as had been planned, but instead redeveloped, on the grounds that it was already informally colonised by some of the uses which the new centre was intended to serve. Firstly, many of the former workers still lived in the neighbourhood. Secondly, at her first site visit, Bo Bardi had realised that the derelict factory was already informally occupied by people from the neighbourhood in a way it intended to be used for by SESC: there were active football teams, an lively amateur theatrical group, dance groups and improvised barbecue places. It was always important for Bo Bardi to first observe what was happening in the space naturally, before proceeding with her own design decisions. Always driven by an urge to design and build what people want, Bo Bardi noted: *What we want is precisely to maintain and amplify what we've found here, nothing more* (Ferraz 2012, at "Lina Bo Bardi: Together" exhibition web site, 2).

Bo Bardi proposed to strip back the existing building to its essence, exposing the beautiful but rough reinforced concrete structure and brick walls. The decision to keep the existing structure significantly enhanced the sense of place from a social point of view. There is a strong relationship between the existing factory and the local community, a working class district of São Paulo. The decision to keep the original factory paid respect to the history of human labour that took place there; in the words of Marcelo Ferraz, who worked as one of the architects on the SESC Pompéia:

> The rehabilitation of a former factory—a place of hard work; of suffering, for many; a testament to human labour—and its transformation into a place of leisure, without erasing its history, make SESC Pompéia a special space. The care taken to ensure that so many details of the old factory remained visible—whether on walls, floors, roofs and other structures, or in the new facilities—meant the space would begin its new life full of warmth and animation.
>
> (Ferraz 2012, at "Lina Bo Bardi: Together" exhibition web site, 3)

Here, Bo Bardi's experiments with reinforced concrete, *beton brut*, continued, in combination with the reuse of the post-industrial brick shell of the abandoned factory. She later added three towers: a water tower and two towers housing the sports courts and changing rooms. The whole project has a certain roughness and aims for a clear contrast between the new and the authentic old. Y-shaped bridges connect the towers, turning the journey from locker to court an event of circulation and urban drama. Being deeply committed to the social and cultural potential of architecture, SESC Pompéia illustrates the power of architecture as "an agent of social change", supporting residents of a poor working-class neighbourhood with cultural and sports facilities, maintaining the identity, memory and history of place through careful adaptive reuse and extension.

SESC Pompéia has a generosity in plan that allows its multiple activities to co-exist in a relaxed way: high and low culture, old and young, ambitious architecture and the everyday, football and ballet. Rowan Moore commented on the multi-functionality of the precinct:

> It houses football, swimming, theatre, dance and art. Old men play chess there, and children play with building blocks. You can eat in a popular canteen, and you can sunbathe on a boardwalk called "The Beach". Or you can simply sit and watch the passing scene, as you might in a park.
>
> (Moore 2012)

Besides Bo Bardi, the main architects for the project were Andre Vainer and Marcelo Ferraz; the development of the project included input of many others. The project also included artists, technicians and workers in all aspects of the proposal, and Ferraz recounts the working process and participation of others:

> André Vainer and I, first as students and then as recent graduates, were privileged to take part in this adventure. For nine years (1977–86) we developed the project with Lina, working every day in the midst of the building site: monitoring the ongoing projects, the in situ experiments, the involvement of technicians, artists, and especially workers…We had an office inside the building itself; the project and the programme were formulated as an amalgam, joined and inseparable. The barrier that would normally separate the virtual and the real did not exist; it was architecture made real, experienced in every detail.
>
> (Ferraz 2012, at "Lina Bo Bardi: Together" exhibition web site, 4)

In the importance of collaboration in the design and construction process, Bo Bardi's goal was to place people at

the forefront of all design decisions, not just the direct end-users, but the wider community. According to her former collaborators (Vainer and Ferraz), she had very clear ideas how she wanted the spaces to function, making sure that everything was aimed to create a sense of leisure within the project. The purpose of design is to facilitate the building's ability to invite the user to participate in certain social situations and activities, and SESC Pompeia is doing this very well (see Figs. 2.5 and 2.6).

The Rehabilitation of the Historic Pelourinho District, the Old Baroque Centre of Salvador, Bahia, 1986–92

Salvador has a long colonial history and it was not only the historical and cultural epicentre of Bahia (named a World Heritage Site by UNESCO in 1985), but also the first capital of Brazil. For many decades, the Baroque centre was left in decline and became unsafe to visit as old buildings crumbled and roofs collapsed. It required the political support from Mario Kertesz (then mayor of Salvador) and Gilberto Gil (the influential musician was then Minister for Culture) to overcome scepticism that renovation of the old quarter (instead its complete demolition) would be a viable option for the historic site. The existing building stock provides a valuable resource for urban regeneration and, once restored, can improve the liveability of urban areas.

For some sites that have been left alone for decades to decay by neglect, the physical damage of the site can render the site unusable both in terms of the cost to repair the damage as well as unsafe by government standards. Rehabilitation programs first focussed on the historic centre, the colonial *Centro Historico*, and later expanded to include the *Ladeira da Misericordia*. These colonial buildings are robust in form and construction, adaptable for different use and have an attractive character; their significant potential for reuse and adaptability to new usage makes adaptive reuse preferable to demolition. Demolition would only add to future resource stress, pollution and waste.

Today, the Pelourinho area demonstrates an important part of the history and culture of Brazil. The smallness of scale and fine urban grain of the rehabilitated Baroque quarter serves as a model of urban renewal and decentralised democracy (see Figs. 2.7 and 2.8).

- **Adaptive reuse of existing buildings as cultural centres Casa do Benin and Casa do Olodum in Salvador, 1987–89**

Two 19th-century buildings on the corner of *Praca do Pelourinho*, the main square of Salvador, were converted into Afro-Brazilian cultural centres. One of the advantage of these two four-storey buildings is their prominent location in the historical Baroque centre of the city. Bo Bardi retained the historical facades and inserted a new circulation, staircase, exhibition spaces (a long distinctive main space) and a library and restaurant that promotes the culture of the African country Benin (the origin of a majority of slaves) (see Figs. 2.7 and 2.8).

Figs. 2.7 and 2.8 *Left* Projeto Barroquinha, Salvador de Bahia (built 1986–90), the careful urban renewal and renovation project of the run-down but historically significant Baroque city center, by Lina Bo Bardi in collaboration with the musician Gilberto Gil. It includes the adaptive reuse of Casa do Benin and Casa do Olodum, both Bahian-African cultural centers. *Right* Casa do Benin (Courtesy Instituto Lina Bo e Pietro Maria Bardi)

Figs. 2.9 and 2.10a *Left* Staircase insertion in the Centro Cultural Casa do Benin, the Bahian-African cultural center (Salvador, 1987). *Right* The large timber spiral staircase Escada de Madeira, in the Solar do Unhão (the former Museu de Arte Moderna), Salvador

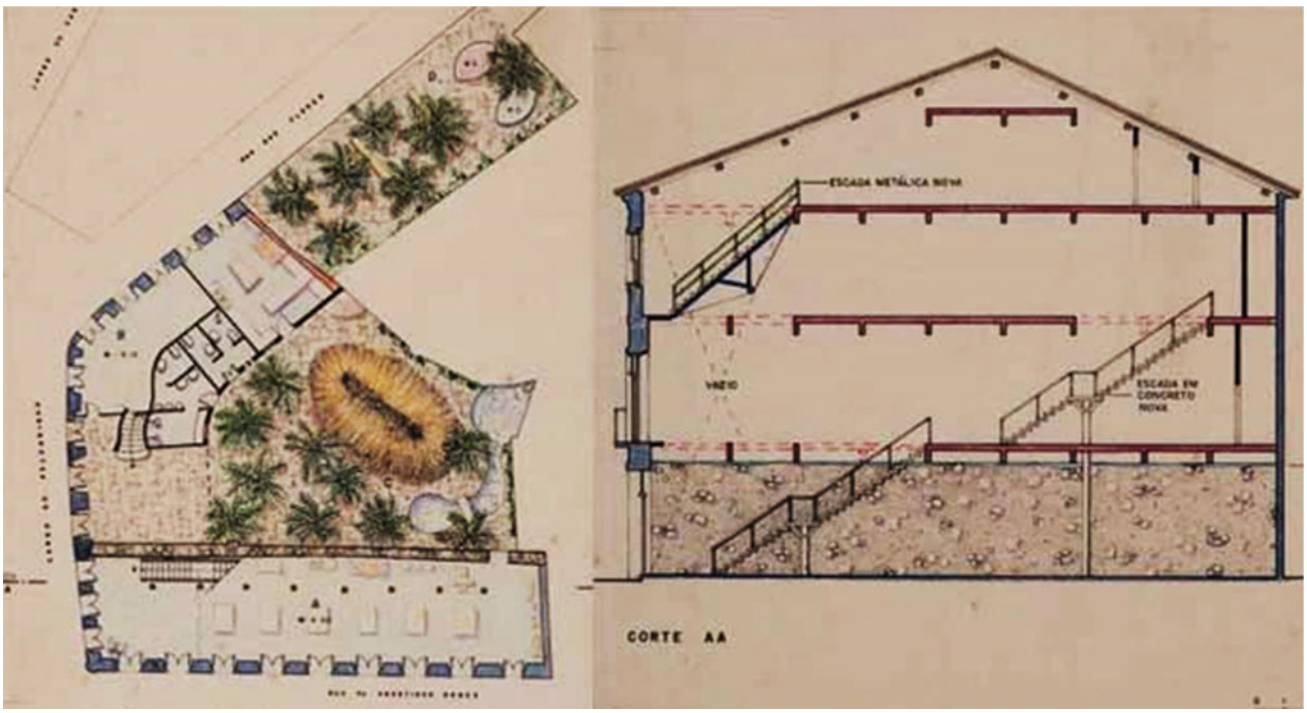

Fig. 2.10b Plan and section of Casa do Benin (Courtesy Instituto Lina Bo e Pietro Maria Bardi)

- **Ladeira da Misericordia in Salvador (in collaboration with architect-engineer João Lele Filgueiras Lima), 1987–88**

The *Ladeira de Misericordia* (meaning "Mercy Slope") is a historically important staircase link, connecting Salvador's lower (port area) with the upper areas (the historic centre Pelourinho). It is one of the few remaining historic pedestrian connections between these two sections of the city, with examples of 17th century colonial houses along the staircase.

Bo Bardi restored three of the derelict buildings along the Ladeira and converted them into social housing, and inserted a new restaurant building, the *Restaurante do Coaty*. Today the

Figs. 2.11 and 2.12 *Left* Restaurante do Coaty, at the Ladeira da Misericórdia, built in curvilinear shape around a mango tree, recognizably different from the existing buildings (Salvador, 1987–88), by Lina Bo Bardi and João (Lélé) Filgueiras Lima (Courtesy: Instituto Lina Bo e Pietro Maria Bardi; S. Lehmann 2000)

link is mostly abandoned and the success of the restaurant was short-lived, due to the general economic decline of the neighbourhood, population decline in the 1970s and 80s, crime and deterioration of the social fabric. The terraced site for the restaurant is located at the upper end of the historical street: it's a small ensemble of buildings as a series of commercial buildings for bars, shops and the open-air restaurant. In addition to the renovation of three Baroque buildings. Only a part of the proposal, however, was realised due to the lack of financial viability of the project. Bo Bardi collaborated here with the architect-engineer Lélé Filgueiras Lima, who developed the prefabricated modular ribbed concrete panel system used for construction; the project has a certain roughness and she agreed with Lélé that beauty was of less importance. Today, as part of the renovation program funded through the 2016 Olympics regeneration funds, there are plans to reactivate the Ladeira project and transform it into a revitalised public space (see Figs. 2.9 and 2.10a, 2.10b, 2.11 and 2.12).

The Multiplicity of Regional Identity in Bo Bardi's Late Works

In Bo Bardi's works we find acceptance of regional construction methods as one mode of expression to handle the varied topography, introducing ground floor walls with expressive, irregular stonework and the total exposure of structural elements above (for example, the exaggerated concrete super-frame of the MASP in São Paulo, where the structural frame defines the entire brutalist aesthetics of the building). Her work reveals a range of architectural languages, and here, such diversity can be seen as a pattern of local influences carried over from one project to another and transformed in the process; while her architectural language continually evolved, and this evolutionary aspect is extremely important (Zeuler Lima in AV Monografia 2015).

Constructional form and material character, for instance, were integral to an evolving expression in her architectural work. She was adept at the use of off-form, exposed concrete and the bold simplification of large-span structural ideas. Large concrete structures were common in Brazil from as early as the 1930s building boom, as there were no steel mills at that time (Artigas 1997). The way in which the architectural elements—such as concrete walls, columns and beams—were articulated, from one work to the next, provides a basis upon which to evaluate her work as a whole. She was concerned with the specific appearance of the structural elements, and thus she re-interpreted in concrete the regional tradition of simple articulation of the wall surface (just as in the *Maisons Jaoul* by Le Corbusier, 1954–56).

The new capital city Brasilia was seen by some as an example of the failures of top-down planning of mega-projects and pedestrian inconvenience. The sprawling new capital city carved out of the Brazilian savannah became an emblem of both, Latin America's leap into modernity and, later, of the limits of Modernism's utopian aspirations and failure to deliver on its promises. Attending Brasilia's inauguration in 1960, the French writer Simone de Beauvoir complained about its monumental civic scale and that all of its *superquadras* exuded "the same air of elegant

Figs. 2.13 to 2.16 Cultural and leisure centre SESC Pompéia, São Paulo (1977–86), making use of a former factory and extending it with a beton brut tower (*Photos* Federico Calabrese, 2015)

monotony". She commented: "What possible interest could there be in wandering about? The street, that meeting ground of … passers-by, of stores and houses, of vehicles and pedestrians … does not exist in Brasilia and never will" (12).

Critiques of the Brazilian approach, mainly directed against Niemeyer, were beginning to appear in the *Architectural Review*, which wrote in 1950 that "Brazil's architects have a quest for novelty, while desperately needed low-cost housing and social improvements are neglected". Even before completion of this gigantic project, the city of Brasilia, criticism against Brazil's "superficial architectural style" increased. After visiting the 1953 São Paulo Biennial opening, skeptical comments came from Bruno Zevi, Walter Gropius and Max Bill. In the *Architectural Review*, Swiss architect Max Bill sharply criticised Brazilian Modernism, commenting that it has become "empty formalism, a waste of materials, lacking any structural logic" (Bill 1954, 62). This criticism had significant impact in Brazil and people started to question the way architecture had evolved in the country.

At the height of her professional career, Bo Bardi became increasingly disillusioned with functionalism and the way Brazilian architecture was developing, especially after visiting the much anticipated completion of the new capital Brasilia in 1960 (Ferraz 1993; Bardi 2012). Questioning such mega-projects, the possibility of building a new city from scratch and what she called the "superficial aestheticism", she refused to follow the trend of an over-articulated application of technology and formalism as means of perpetuating an inherently wasteful consumer society.

Climatic conditions have often been explored as the impetus underlying regional aspects of architecture (Hitchcock 1955; Banham 1962; Bullrich 1969). While still adhering to functionalist principles in terms of the general layout of the plan, she started to indulge in shallow-pitched roofs and random walls made of local stone. Paying attention

Figs. 2.17 to 2.20 The Centro Cultural Casa do Benin, the Bahian-African cultural center (Salvador, 1987) (*Photos* Federico Calabrese, 2015)

to principles of natural cross-ventilation and thermal comfort; here, interiors are shielded from the excessive heat and light of the tropics. At the same time, she remained unequivocally committed to the revelation of twentieth-century building technology: the reinforced concrete skeletal frame and its infill screening or shutters, with a strong interest in social aspects and low-cost housing.

Bo Bardi's output, while small, is significant because of her importance as an architect who respected regional cultures, which became the main drivers of her later works in Salvador; she nurtured a diversity of design approaches, making every project unique and outstanding (even if simple in its gesture), rather than producing a large number of repetitive projects; her experimental approach ranged from daring construction technology (such as the large-span superstructure of MASP with its 8 m high and 70 m wide public space), to small-scale experimentation with concrete formwork (especially the adaptive re-use projects in Salvador), to careful restoration of heritage buildings (taking the heritage focus of Lucio Costa further into mainstream

Figs. 2.21 and 2.22 Restaurante do Coaty, at the Ladeira da Misericórdia (Salvador, 1987–88), by Lina Bo Bardi and João (Lélé) Filgueiras Lima. (*Photos* Federico Calabrese, 2015)

Brazilian architecture), thus opening up an alternative way into modernism that makes Brazil such a unique case.

While Bo Bardi had initially participated in the explorations of the modernist generation, subsequently she became a central representative of the critical regionalism approach. Like Luis Barragan at the same time in Mexico City, she refused to simply surrender to the European abstract modernism *a la Bauhaus* (Andreoli and Forty 2004); rather, she tried to develop it further by bringing in the regional character. As a result, her work was not based on sentimental or folkloristic elements. Comparable to Barragan, Bo Bardi is an example of an architect working with the specific characteristics of the particular place, including the common, local, ordinary and "everyday", thus creating a language of sustainability. She immersed herself in writing, both culturally and politically, and architectural writing became highly significant to her development as an architect; she wrote more than she built. For instance, in 1947 she began editing the journal of the São Paulo Museum of Art, *Habitat*.

Bo Bardi argued that a country should build identity on the foundation of its own roots, and explored Brazil in order to assimilate and better understand its local and popular cultures, whilst successfully integrating these with social

values of the Modern movement (Araujo 2013). Her concept of an "architecture of social responsibility" has still great relevance today (Anelli 2012).

Her early works—like the Glass House or the MASP, both in São Paulo—were still in a modernist style, keeping up with the international trend. Thereafter, Bo Bardi's work became increasingly inflected towards the vernacular, influenced by the African slave culture of the north-eastern Brazilian people in Bahia, where she lived for five years. Similar to Mario de Andrade, Bo Bardi developed a passion for this locally rooted culture and for popular art; she wanted to *brasilianise* architecture. For her, "the truth in the vernacular lay forever beyond time because nobody could determine its age" (Bo Bardi 1995, 36); it was timeless. In her writings, she promoted the social and cultural potential of architecture and design, and proposed new parameters for design thinking on adaptive re-use, which included her notions of "historical roughness" and "tolerance to imperfection". She wrote

> We cannot accept, however, that Brazilian architecture is already on its way towards academism, as various foreign views would have it, and nor will it be, for as long as its spirit is in the human spirit and its goal is the improvement of living conditions —for as long as it draws its inspiration from the intimate poetry of the Brazilian land. These are the values that really define contemporary Brazilian architecture.
>
> (first published in the journal *Habitat* 2, January 1951, 32. Quoted from *Stones against Diamonds, an anthology of writings by Lina Bo Bardi*, published by Architectural Association Publications, London; 2012, 26; and ILPMB 2012)

What Has Luxury Got to Do with Sustainability and the Work of Bo Bardi?

As the cross-cultural significance of adaptive reuse of buildings increases, either due to destruction or gradual deterioration, interest in the idea of sustainability is attracting much attention among scholars in a range of disciplines, specifically cultural history, urban design, and landscape architecture and heritage studies.

Bo Bardi "invented" her own version of sustainability, introduced this concept through her adaptive reuse designs and through ideas about cross-cultures, linking recycled buildings with durability, and ensuring a special user experience within her buildings. Based on the fact that sustainability aims to create ethically correct and deeper value, what has sustainability to do with luxury? There is now a global trend towards a better understanding of sustainability and luxury, and the creation of "luxury as sustainability". In future, there will be a new forms of luxury, which will be environmentally acceptable, recycled/upcycled and low-impact/low-carbon, placing an increasing importance on durability and longevity (Condello 2014).

Upcycling means not only clever reuse of space, but also minimising waste and turning the reused building into a luxurious experience. While *sustainable luxury* seems an oxymoron, however, exclusive goods and buildings with sound environmental and social credentials does not have to be a contradictory concept. If we define luxury as a desirable good that is difficult to obtain, than luxury is something that embodies the social and environmental credentials of a building, product or service. As markets mature (including the real estate market Latin America, where buyers have increased expectations), their more affluent citizens increasingly follow international trends. This includes awareness and concern over social and environmental issues, and a desire for the buildings to provide more meaningful experiences.

Bendell and Kleanthous defined authentic luxury as "those goods and products that provide the greatest positive contribution to all affected by their creation and identify their consumers as having the means and motivation to respect both people and planet" (2007, 4). Their report on the luxury goods industry notes "Consumers' increasing concerns with environmental and social problems are the greatest cultural shift of the 21st century" (Bendell and Kleanthous 2007).

In this context, Bo Bardi can be credited with constructing a new way of thinking through recycling buildings - to consider human interfaces with thoughtful public spaces and their potential for adaptation more critically. Typical for her use of architectural fragments and derelict buildings is the salvaging and recycling of structures by unravelling the cross-cultural spaces (each with their own narratives). In this process it is essential to encourage both the community (consumers/citizens) and companies (developers, architects and designers) to be more aware of the social and environmental aspects of their activities. This will allow for greater public participation in decision making and to establish a shared responsibility for better outcomes.

Another Type of Modernism

The most relevant work of Bo Bardi might as well be her late work, which introduced urban renewal to Brazil's derelict historical centres. With the careful renovation of the colonial district in Salvador, the Projeto Barroquinha (executed from 1986 to 1990), she inserted few new buildings (such as the Coaty restaurant) and adaptively reused existing structures in the run-down Baroque district. Here, Bo Bardi collaborated with the musician Gilberto Gil and the French philosopher Pierre Verger, and highlights are the Casa do

Benin and Casa do Olodum, both Bahian-African cultural centers with the insertion of spectacular new staircases.

While in her early work, before 1977, Bo Bardi was still concerned with introducing established modernist ideas into Brazil, in her later work we can find a strong expression of an approach consistent with Carroll's point about the importance of local elements and a wider social and ethical responsibility (Carroll 2004). Bo Bardi's later work (starting with the SESC Pompéia) reveals how she had absorbed and was working with regional characteristics, and elements of vernacular identity (Condello and Lehmann 2016). Her poetic and, at times, rigorous architectural language remained open to the materiality of everyday life, while she never aligned herself with postmodernism or mainstream Brazilian modernism. Starita also comments on the shift of approach in Bo Bardi's work, when she notes: "……the arguments about vernacular architecture Bo Bardi encountered, how that affected what she built in the first half of her career, and the different approach she took in the second half of her career as an architect, that is, from 1977 until her death in 1992" (Starita 2016, 1).

Architects must focus on how buildings, places and cities really work, how the user fits into the picture, how the existing city can be maintained and up-cycled, and how technical systems are integrated. Bo Bardi's main contribution was to show architecture this alternative way; a pathway towards the appreciation of vernacular cultures and the potential of adaptive reuse, while always respecting the diversity of possibilities. Clearly, if we recycle the building stock we can go further than when we replace and demolish the existing (Girardet 1999).

In "The metabolism of the city: optimizing urban material flow through principles of zero waste and sustainable consumption" (2012), I wrote that "reusing buildings, building components and integrating existing structures in new developments (instead of demolition) is a basic principle of any sustainable project" (Lehmann 2012, 234). Material flow and zero waste concepts are now impacting on urban development concepts, and architects and planners examine opportunities for re-use of modular prefabricated components, design for disassembly, the minimization of cut-offs, and higher material efficiencies, meaning reduction in material thickness and embodied energy, enabling future chains of reuse, and a preference for locally sourced materials. Keeping and upgrading the existing building stock is an important strategy, as the most sustainable building is likely to be the one that already exists (based on its embodied energy, materials and life-cycle considerations).

Bo Bardi is one of the pioneers who introduced the concepts of adaptive reuse and critical regeneration to Brazil, rethinking architecture's potential for social engagement with the city. Wherever possible, she also reused the authentic material reclaimed from demolished buildings and saw her role as the one of an *Urban Regenerator*. Our first priority ought to be to assure that we reuse older buildings, as the greenest building is the one that's already built − renovating and retrofitting existing districts is, therefore, essential. It becomes obvious that all future eco-cities will have to integrate strategies for integrating existing structures and the adaptive reuse of buildings into their urban planning (Lehmann 2012).

Today, all architecture is global architecture. Sociologist Anthony Giddens argues that "the flipside of globalisation is a return to the local with a revival of long forgotten cultural identities and the vernacular" (Giddens 1999, 86). Of course, there is a certain paradox embedded in the fact that an anti-globalist movement, like regionalism, is seeking to extend itself worldwide. Therefore, a core question today is: how can local character be expressed in an architect's work in times of globalisation? Hereby, the concept of regionality "depends on it being possible to correlate cultural codes with geographical regions", as Colquhoun (1997, 22) pointed out.

With the impact of globalisation since the 1980s, architecture in all countries has become more similar and national differences less recognisable (Zein 1998, 2004; and Frey 2010). Through globalisation, the traditional determinants—local climate, geography, craft traditions and religions—are rapidly losing their importance. One conclusion that can be made is that regional identities, such as those belonging to São Paulo or Salvador, have been strong, dynamic influences on Bo Bardi's architecture. Today such regional influences are still evident and identifiable in some contemporary architects' works, resolutely withstanding the pressures of globalisation, which erodes identity and regional characteristics in the built environment.

However, regionalism's success has sometimes been ambiguous; its critical dimension is still a major influence, while its tendency towards sentimental nostalgia attracts conservatives. Regionalism as the source of authenticity, grounded in place and user, and as introduced by Bo Bardi has contributed to the maturing of architecture in Brazil and the discovery of the culture of the Northeast, an almost mythical region of Brazil; it has given it a sense of identity, which is always "constructed"; it never evolves naturally. The current revival of an interest in identity is obviously the product of a sense of dislocation in a fast-changing globalised world.

Both tendencies, international modernism and regionalism, had an impact on the further development of Brazil's architecture and identity. The idea of a "dynamic regionalism" (Lehmann, 2004) represents the idea of modernism adapted to its locality. Today, it can be seen as an attempt by

a few architects to escape from the low point of global corporate banality and to re-introduce the idea of local building tradition, materials and meaningful typology. Taking into account locality and site, this regionally-inflected approach distinguishes the work of Lucio Costa and Bo Bardi, as much as a Swedish interpretation distinguishes architects such as Sigurd Lewerentz and Gunnar Asplund from the works by the early Bauhaus masters (e.g. Walter Gropius, Mies van der Rohe, Ludwig Hilbersheimer). Their interpretation of modernism was readily seen as differing from Gropius' Bauhaus modernism.

It is therefore revealing to study how modernist ideals were incorporated into a young, fast-growing and ambitious country like Brazil, with a legacy of contrasts and contradictions. The role of Bo Bardi within modernism's evolution is rightly been celebrated today, recognising her unique path and contribution as one of Brazil's most important, multi-faceted architects.

Bo Bardi's work has become increasingly popular among the younger generation of architects in recent years, embracing enthusiastically her work, mainly thanks to a growing interest in projects with a social and cultural conscience. Barry Bergdoll commented in a recent interview on this growing posthumous appreciation of Bo Bardi's work and recommended caution:

> There's such a fad for her right now that we run the risk of smoothing over the complexity and the contradictions of her work. She's being elevated to some kind of holistic saint of everything contemporary society stands for now, at the expense of revealing her historical accomplishments and shortcomings. (…) Just because we love the fact that she was a socially engaged, strong female architect, we're now going to make her into the Frida Kahlo of architecture? Hers was a very serious, thought-provoking life, and she deserves to be engaged critically, not to become an object of politically correct reverence. (Bergdoll 2015)

Essentially, I believe it is fair to suggest that there are three different phases in Bo Bardi's work: her pre-Brasilia projects (before 1956), post-Brasilia projects (after 1956), and regional works (after 1977) are all different in their entire attitude and approach. Here is an architect who constantly evolved and absorbed ideas from the culture of the everyday lives of people around her. However, her influence as a key figure cannot be underestimated in shaping the movement and making significant contributions to the special place of Brazilian architecture in world architecture today.

When the heroic white modernism of the Bauhaus, Le Corbusier and Russian constructivists arrived in Brazil, it was given a distinctively Brazilian interpretation. It was "another modernism" that did not follow the style template of Philip Johnson's International Style (1935), but enriched architectural production in the second half of the 20th century. The white modernism from Europe was no longer accepted as the only model, in a "one size fits all" fashion, instead a diverse range of other modernisms without dogma emerged, what William Curtis called "the process of absorption" (1982, 491).

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Salvaging the Site's Luxuriance: Lina Bo Bardi—Landscape Architect

3

Annette Condello

Fig. 3.1 Lina Bo Bardi lying in a hammock at Jorge da Silva Prado's beach pavilion at Guaruja Beach near São Paulo (*Photo* Gregori Warchavchik; Courtesy Gregori Warchavchik Collection)

Italian-born Brazilian architect Lina Bo Bardi was a doyenne of urban renewal, curator of exhibitions and thrifty stage-sets. She was also an industrious landscape architect. Brazil's periphery predestined Bo Bardi's ideas about repurposing existing building sites from the 1950s onward. Conventionally, scholars have considered Bo Bardi's work as a series of isolated objects, but this chapter analyses her adaptive reuse projects work through the lens of landscape (Fig. 3.1).

After moving to Brazil in 1946, Bo Bardi became a self-taught landscape architect and environmentalist in a country which had already begun obliterating the easily available natural resource, the Amazonian forest.

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Environmental degradation motivated her to rehabilitate archaic and industrial structures, resuscitating their missing parts with new spoliated forms, thereby salvaging a site's luxuriance, that is, to save its living environment. Such projects included the SESC Pompeia Leisure Centre, *Teatro Oficina*, *Morro da Urca* Cable Car Station and *Coaty* Restaurant. Modern Brazilian artists, landscape architects and architects, most notably Tarsila do Amaral, Roberto Burle Marx, Mina Klabin Warchavchik and her husband, Gregori Warchavchik, played a key role in guiding Bo Bardi's career towards salvaging spoils, or architectural fragments, both pre-Columbian (antique ruins) and once modern, and now archaic, factories with vegetation. This salvaging process, in turn, compelled her to conserve extant buildings in intriguing ways. She cultivated otherwise outmoded structures by creating "plant" rooms, not for machinery, but for people. The building's perimeter preserved the site's luxuriance, but articulated it in a new outdoor form. Bo Bardi, for instance, fabricated a reed motif into a crinkled-concrete profiled vertical panel as walls to resemble nature's luxuriance. And she reconceptualised waste (or refuse) as raw material for her *No Ibirapuera* Popular Art of Bahia State exhibition. This chapter argues these projects triggered Bo Bardi to environmentally salvage botanical and cultural luxuriance within abandoned buildings, to create landscape architectural models for "re-fuse" by salvaging the site's constructed waste. As a result, the "re-fuseful," as opposed to refuse, is a new-found axiom for adaptive reuse for the environment.

Introduction

> I'm an architect! I can't go through walls! I'm not a witch! All I can do with walls is to break them down.
> (Bo Bardi 1967a; Correa et al. 2012)

> The luxuriance and prodigality of nature offers almost unlimited possibilities to the architect.
> (PM Bardi 1970)

The above remarks by Lina Bo Bardi and her husband, museum director Pietro Maria Bardi, set the stage for this chapter. They expose concerns that mark her later career as an urban regenerative architect and landscape architect given the contemporary preoccupation with sustainability, luxury and refuse. In 1946, the Bardis sailed from Naples to Brazil, landing in Recife. They lingered in Recife for a few days. The semi-arid landscape of the country's rural Northeast most certainly made a lasting impression on her. First settling in Rio de Janeiro, she would have been impressed with the tropics and Brazilian modernism, as the plant species were vastly different from what she knew in Italy. Bo Bardi scrutinized the semi-arid landscape and pursued her new-found interest in Brazil's tropical/cultural gardens. In the 1950s she ventured into the states of Pernambuco, Bahia and Minas Gerais to explore the semi-arid landscapes, plants and work on cultural heritage projects. In Recife, she would have experienced Burle Marx's cactus garden *Euclides da Cunha* square (1935), which featured a statue of a cattle-rancher set amidst indigenous vegetation, was authentically Brazilian because it represented the backland or *sertão* (Leenhardt 2011). In Bahia, she gained landscape experience first-hand walking through deserted rural regions scattered with cacti and other species, observing disused vernacular buildings in squalid conditions.

Her poetic projects involve luxury in unconventional ways. Through vertical and horizontal vegetal mantles she created plant rooms for people. Symbolically, she broke walls down and reinvented new ones, using "architectural spoils," fragments or rubble transformed to justify an imposed order in a new-configured composition (Condello 2003). Poetically repurposing existing buildings by means of vegetation, Bo Bardi incorporated spoils in the same vein as Burle Marx's vegetated walls, such as those at his Rio de Janeiro house-studio-laboratory estate, in São Paulo and elsewhere (Calvacanti et al. 2011) (Fig. 3.2). Like Burle Marx, Bo Bardi was also an artist and stage-set designer. Writings about Bo Bardi, however, tend to be hagiographic, seldom considering, for example, her landscape projects in association with Gregori and Mina Klabin Warchavchik or Austrian émigré architect Bernard Rudofsky.

Bo Bardi's role as landscape architect was the outcome of her husband's contacts with Burle Marx and the Warchavchiks, as well as through his association with Brazilian Avant-Garde artists (Condello 2014b). Tarsila de Amaral and Lucia Suane's paintings, especially inspired her to consider gardens, factories and indigenous themes. In terms of renewing buildings, Gregori Warchavchik, who was previously recognised for working with modernist and conservationist Lucio Costa on projects in Rio de Janeiro, influenced Bo Bardi's works (Lehmann 2014). In the late 1940s, Warchavchik assisted the Bardis to select a site in the Atlantic rainforest to build their modern house in Morumbi (de Oliveira 2006; Lima 2013; Condello 2014b). At that time, the only other buildings in this area were a chapel and farmhouse. And in nearby *Jardim America* she inevitably knew Rudofksy's patio-house, Casa Arnstein (1939–41), which reappears in her projects. Moreover, Mina Klabin Warchavchik's geometric gardens would awaken Bo Bardi's senses, as demonstrated by her similar integration of organic cactus gardens within new structures (Condello 2014b).

In 2012, after visiting what is now suburban Morumbi, São Paulo, with Warchavchik's grandson, to see Bo Bardi's "Glass House" (1950–51), what I learned was that the Morumbi Chapel of Sao Sebastiano (1948–50) conserved by Gregori Warchavchik is located practically in the Bardi couple's backyard (Fig. 3.3). In 1951, Pietro Maria Bardi

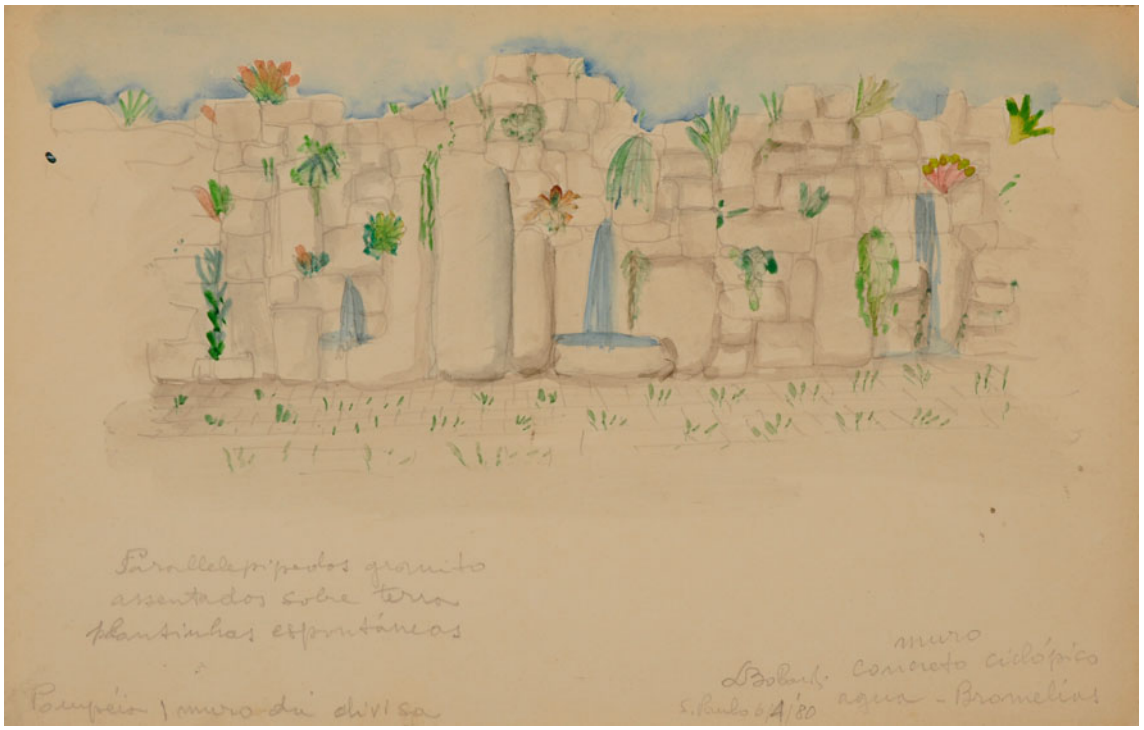

Fig. 3.2 Lina Bo Bardi's elevation of a broken wall recomposed into a new wall made up of "architectural spoils" merged with plants, for the SESC Pompeia factory in São Paulo, 1977 (Instituto Lina Bo e PM Bardi)

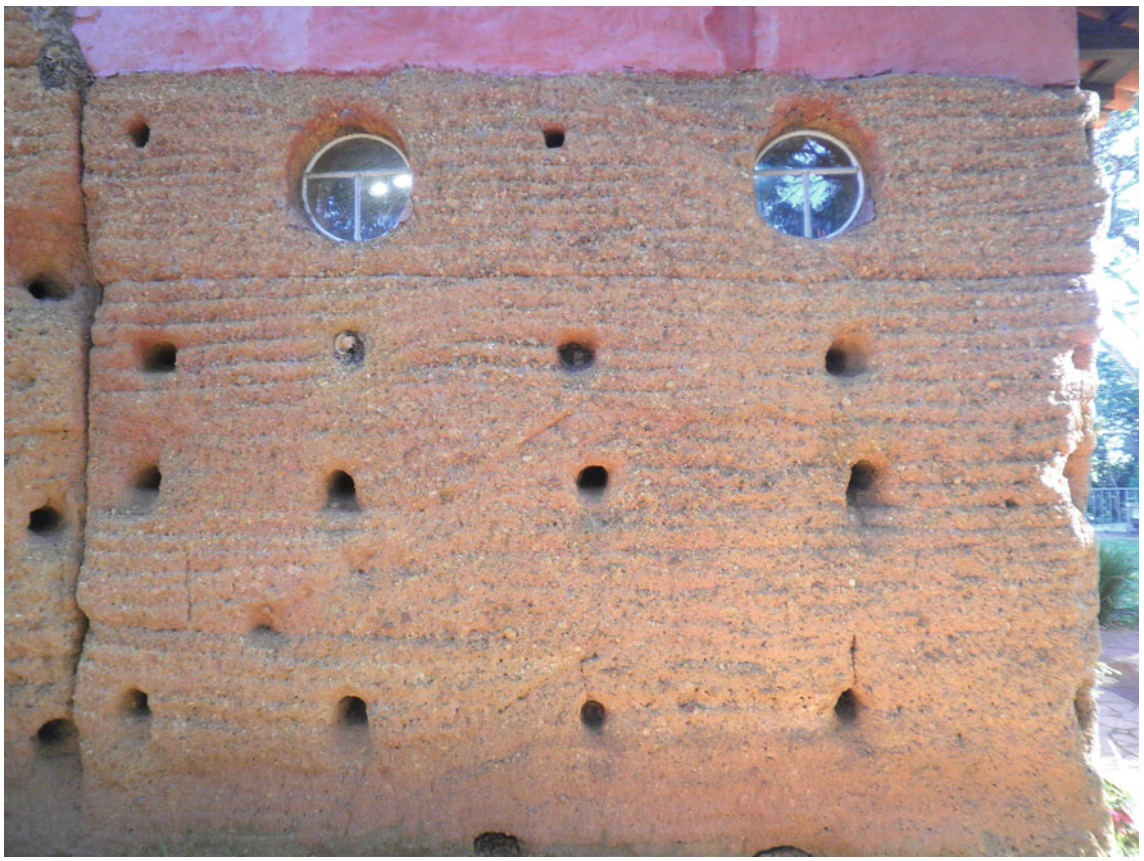

Fig. 3.3 Gregori Warchavchik's conservation of the Morumbi Chapel of Sao Sebastiano wall, 1948–50, São Paulo (*Photo* Condello 2012)

urged Warchavchik to commission Lucia Suane to embellish the chapel with frescoes, depicting religious and indigenous themes. Similar to Costa and Warchavchik's conservation approach (and Lucia Suane's naive style of drawing Bo Bardi later adapted), Bo Bardi extended their legacy by melding modernity with the past through their inclusion of indigenous forms of luxury, such as the "Crystal Garden House" (1958) with its tufts of plants and tendrils growing through its walls.

In response to Pietro Maria Bardi's remark about "luxuriance and prodigality of nature" within the context of adaptive reuse, Bo Bardi's projects are instructive models for future "re-fuse," that is, they involve or spoliate materials deriving from actual building sites as potential waste and then transferred into salvaging the topography. Some of Bo Bardi's realized and unrealized projects in the city and its periphery, offer aesthetically undistinguished establishments filled with both raw and luxuriant matter for pleasure, drama, amusement or conviviality.

Paradoxically, Bo Bardi was interested in how buildings responded to the city's periphery as well as a site's "trash bin aesthetics" back to the landscape by way of luxuriance. She provided solutions which eliminated the decrepit state of buildings, renewing the form of constructed landscapes to improve people's livelihood. Her works link botanical luxuriance with its cultural luxuriance, which both informed Bo Bardi's environmental projects. The adaptive reuse projects frame the organic process, a "dynamic regionalist" position deriving from the Modern Movement (Lehmann 2014) to through to the Metabolist Movement, which explored urban design strategies that were flexible and transformable within her luxuriant landscapes. Within her renewable projects, these become manifested as compositions of organic, or inorganic waste. "Bo Bardi knew how to make positive sense from the unpaved plurality of things" (Wisnik 2014: 46). She unexpectedly spoliated or transformed luxuriance positively within Brazil's interior.

Bo Bardi and Urban Regeneration

> Like a snake sloughing off its skin, he will struggle to shed his "antiquity." But once it has been cast off, it can then be incorporated into his cultural heritage, as part of a never-forgotten historical continuity.
>
> (Bo Bardi 1958, in *Stones Against Diamonds*, 2012: 65)

In 1991, having reached her late seventies, Bo Bardi recollected in an interview with Olivia de Oliveira an incident that involved Italian Futurist poet Filippo Tommaso Marinetti and an image of a Roman spinach-green factory. When she was an art student in Rome in the late 1920s, Bo Bardi's peer Orestano organized an exhibition at a gallery curated by none other than her future husband, Pietro Maria Bardi. Orestano, Bo Bardi remembers, presented his "'Project for a Macaroni Factory'… it was green, spinach green." After "Marinetti opened the show, he said, 'Excellent! You've made a factory, with actual spinach macaroni. It's green!'" (de Oliveira 2003: 234–235; Condello 2012), environmentally so. Bo Bardi had Marinetti's green factory remark in mind when she converted the abandoned Pompeia factory in São Paulo's industrial zone into an urban leisure facility. (The *Pompeia* district pays homage to Senator Rodolfo Miranda's wife Aretuza Pompeia and not Naples' Pompeii, as some might think.)

Turning to Italy, Bo Bardi's formative years in her training as an artist and architect informed her salvage instincts when melding plants with ruins. When studying at the *Scuola Superiore di Architettura* in Rome in the 1930s, she came under the influence of leading Roman urbanist and architectural historian Gustavo Giovannoni's method of building preservation, or *ambientismo.* She could not have predicted the impact Giovannoni would later have upon her Brazilian urban renewal schemes. Bo Bardi recalls him "warning against reconstructing ruins to their original state and the need to interpret the contemporary state of different historic works with the support of archival documents and architectural fragments" (Lima 2013: 13; de Oliveira 2003). For Bo Bardi, vegetation was a fundamental concern. "Trees literally come through her buildings, moss and flowers grow from the walls, and structures mimic plant forms and even have vegetation growing on them" (de Oliveira 2006: 118). And her modern green roofs (and ideas about incorporating plants into churches) were arguably derived from a modernist Italian-born architect and landscape architect, Adamo Boari. Today remembered as the architect of Mexico's Palace of Fine Arts, he also designed other conservation projects in Mexico and earlier in Brazil, and the United States with Frank Lloyd Wright (Condello and Vernon 2004). After practising in these countries, Boari taught architecture in Rome in the 1920s (Condello 2014b). This is an important juncture when considering Bo Bardi's plant rooms.

Apart from Giovannoni's preservation method then, Boari is definitely a curiosity when observing Bo Bardi's serpentine configurations and plant rooms—both features are also to be found his National Mexican Theatre design (aka The Palace of Fine Arts). Boari was Giovannoni's colleague at the Roman *Scuola Superiore di Architettura.* In the early 1920s, Boari published articles in *Architettura, arti e decorative* magazine, then under the direction of Giovannoni and Marcello Piacentini. The 1922–23 issue included Boari's article about recent archaeological discoveries in Mexico, specifically the ruins of Teotihuacan's pyramids. In another issue in the same magazine, Boari wrote about his Mexico's National Theatre design. At the *Instituto Nacional de Bellas*

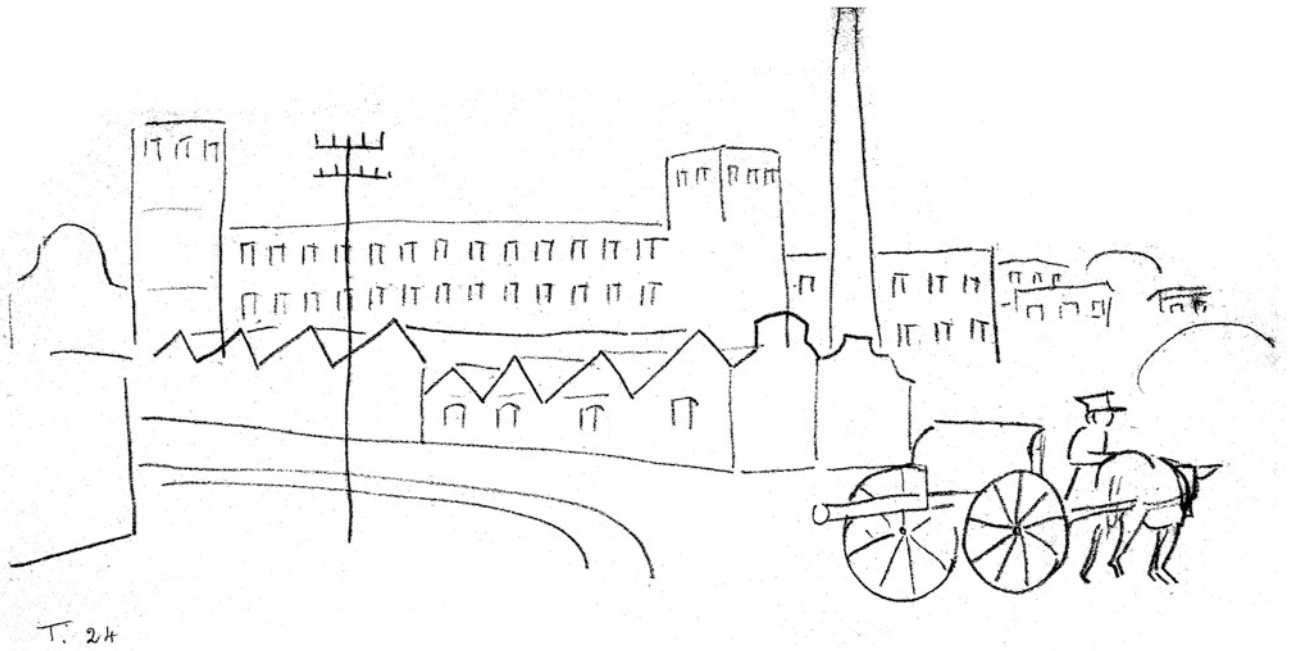

Fig. 3.4 Tarsila do Amaral's *Scene of the 1924 Revolution* resembling Bo Bardi's future Pompeia Factory, outlining three towers in the distance (do Amaral private collection)

Artes y Literatura in Mexico City, Boari drawings within this building feature a tropical-theatre greenhouse, with fountains and serpent-staircases. However these, unfortunately, were unrealized due to the 1910 Mexican Revolution. Nonetheless, they were most certainly intriguing—original sketches reveal pre-Columbian serpents and cactus plants—within and outside the building. Whether consequence or coincidence, this magazine would have circulated in Bo Bardi's parent's library as her father was an artist. Boari's Mexican projects in Mexico would have stirred Bo Bardi's passion to draw plants and spoils from an early age. Inadvertently, Pietro Maria Bardi, who knew editors Giovannoni and Piacentini and possibly Boari's writings, moved in the same Roman art and architecture circles. Pietro Bardi would travel to Mexico in 1947 and no doubt experienced Boari's theatre at first-hand since both of them were dilettantes.

Pietro Bardi attended the "Museum Beyond Limits" at the International Congress of Museums (ICOM) held in Mexico City (in *Panorama*, issue 31, 1948: 21) and discussed Bo Bardi's rehabilitation of the MASP headquarters on *Rua 7 de Abris* in São Paulo. This rehabilitation project was against using conventional walls. As Bo Bardi's first realized renovation, the headquarters featured an unusual configuration of aluminium tubing from the ceiling to the floor, used to display artworks and divide the space. Potted tropical plants were utilized to reduce the humidity of the place.

Three key Brazilian artists, Tarsila do Amaral, Lucia Suane and Lasar Segall, informed Bo Bardi's late projects. Recognized mostly for her botanical representations, do Amaral's paintings also ranged from representations of São Paulo factories to exuding exaggerated tropical landscapes. These works appear in her São Paulo projects. One atypical, but striking image is do Amaral's *Scene of the 1924 Revolution* (Fig. 3.4). Peculiarly, it resembles Bo Bardi's future Pompeia Factory, outlining three towers in the distance. Bo Bardi would have surely seen Suane's works displayed in group exhibitions held at the old São Paulo Museum of Modern Art, Trianon Pavilion, in the early 1950s. Equally peculiar is Suane's frescoes at Morumbi Chapel, which depict indigenous tribes and the Brazilian poor. Such frescoes inspired Bo Bardi to experiment with buildings of a similar kind, such as those existing in her Bahian urban regeneration project in the 1980s. Bo Bardi later recollected that although she was great friends with the Warchavchiks, she did not "have anything in common with Gregori Warchavchik" (de Oliveira 2003: 249; Condello 2014b). Yet she did, as evidenced in a letter to Warchavchik from Pietro Bardi (dated 19 January 1951) about art and photography, as well as the sources that link Pietro Bardi to Suane (Dimitrov 2013). Mina Klabin Warchavchik's brother-in-law, artist Lasar Segall (1891–1957), would have informed Bo Bardi too, especially his landscape painting series from the mid-1950s with their vertical lines as published in PM Bardi's book *Lasar Segall* (1959), upon her Bahian projects.

For Brazilian architectural historian Hugo Segawa, Bo Bardi's successful renovation of an old factory shed in São Paulo into a leisure centre in the 1970s is a "worthy paradigm" (2013: 240) of adaptive reuse. This project is one

filled with landscape preoccupations that tie her work to that of modern architects, specifically Rudofsky. Like Bo Bardi, Rudofsky had previously worked in Italy, and developed a technique of extending the patio-house into a street, an extension in itself. "Brazilian architects still have the responsibility to consciously search for a new articulation [or worthy paradigms] with the reality of the country in face of the world changes" (Segawa 2013: 240). With this search in mind, Bo Bardi (and many other architects), in particular Lucio Costa and his invigoration of Brazilian heritage buildings in the 1940s, were instructive (Comas 2009). They demonstrated how to safeguard historical sites, particularly the archaeological remains at the *Museo das Missioes* in Rio Grande do Sul (Wisnik 2001; Piccarolo 2013).

Apart from Costa, Italian engineer-architect Pier Luigi Nervi and Rudofsky also informed her conservation projects. Since Nervi had collaborated with Pietro Maria Bardi in Italy (Condello 2012, 2014b), both of Nervi's early and mid-career projects steered Bo Bardi's thinking. This was especially the case with one of his first commissions in Italy —a mixed-use construction project for the city of Naples. Nervi developed a new roof for the Naples' Cinema—Teatro Augusteo (1924–29), which included office buildings and a funicular station (Greco 2010: 141). Rudofsky's rehabilitation and extension of Casa Henrique Hollenstein (ca. 1939–40) at Itapecerica, Minas Gerais, used local materials for the wall construction, such as the wattle-and-daub technique deriving from the site (Guarneri 2003). In her future projects, she would collaborate with Nervi in Brazil and learn much from Rudofsky, by not only incorporating plantings within patios, but also with streets as extensions for people as open-air rooms. Lucio Costa stands alongside these figures. When conceptualizing Brasilia, in the 1950s, Costa imagined each *superquadra* with breathable walls of verdure.

Topographically, and in terms of the landscaped interior, Le Corbusier's late 1920s serpentine sketches of Rio de Janeiro would have urged Bo Bardi to revisit and scrutinise his modern schemes (Fig. 3.5). This is especially the case with her beguiling 1986 rehabilitation of the Urca Cable Room project (unbuilt) located at Sugar Loaf Mountain, Rio de Janeiro.

It is important to point out that in Rio de Janiero, a new vision for an urban environment along the Guanabara Bay, the Flamengo Landfill Park (1965), was put in place by female architect, Lota de Macedo Soares, a landscaped adaptive reuse project. Bo Bardi befriended de Macedo Soares and followed her construction of the park, under de Macedo Soares's direction (email correspondence with Ferraz, 19 February 2016). Although Burle Marx is credited as the author of the Flamengo Landfill Park, it was de Macedo Soares who was actually commissioned to design it in the late 1950s, based on Affonso Eduardo Reidy's 1940s imagined project (Lima 2015). Consisting of a waterfront modernist park, this green-belt is described in Michael Sledge's novel *The More I Owe you* (2010), which included references to Bo Bardi as a furniture designer, and depicted in Bruno Barreto's film *Reaching for the Moon* (2013). While working on this project in Rio de Janeiro, de Macedo Soares, meanwhile American 1956 Pulitzer Prize poet-winner Elizabeth Bishop was accustomed to being confronted with the Amazon and Pernambuco's raw materials in the environment (Barbassa 2015: 127). Bishop's short-stories and scraps of ephemeral text evoked subjects close to Bo Bardi's thinking as well, specifically about recycling, or *re-fusing*, resources. Bishop wrote many stanzas on Brazil, such as the "Filling Station" (1965):

> Somebody waters the plant,
> or oils it, maybe. Somebody arranges the rows of cans
> so that they softly say:
> ESSO – SO – SO – SO
> to high-strung automobiles.
> (Bishop 1965)

Bishop's stanza would later divulge in Bo Bardi's empty station—the rehabilitation of the Urca Cable Room project at Sugar Loaf Mountain in terms of recycling imagined landscapes not for automobiles but for leisure activities. Bishop also edited and translated into English Henrique Mindlin's *Modern Architecture in Brazil* (1956), which included two of Bardi's works—the 1951 House for Mr and Mrs PM Bardi (The Glass House) and the São Paulo Museum of Modern Art (1947, completed in 1968), and so she probably encountered Bo Bardi personally. Bo Bardi herself collected a papier-mâché ESSO tiger-head (Perea 2015), implying her curiosity of not to "put a tiger in the tank" (as the ESSO slogan would advertise at the time in the Americas), but to replace it with another animal, the *coati*, transformed into a concrete-reed panelled tank-space, but not for automobiles, as we shall see later.

In Rio de Janiero a newspaper report in *O Globo* on the renewal of Morro da Urca for tourists appeared (23 September 1986: 16), and Bo Bardi was the one who produced sketches for the rehabilitation of Morro da Urca's 1912 cable car station. Bo Bardi removes the existing façade of the cable structure and replaces it with two-storey glazing (Lima 2013: 183) so there is a panoramic view to the ocean and *Cotunduba* Island. Her intention was to convert the station's original structure into an American cocktail bar/nightclub (Fig. 3.6). The building's extension also includes a Japanese theatre for small events. Bo Bardi intriguingly labelled her perspectival sketch of the cable car station as a "green shell." There is more to this project than a functioning green shell or simple skeleton, serving as a response to Le Corbusier's collection of shells and stones (Maak 2011), or beach spoils.

Bo Bardi created a serene bar and reimagined the city of Rio de Janiero by considering what was omitted from Le

Fig. 3.5 Le Corbusier and Alberto Monteiro de Carvalho in front of Morro da Urca's 1912 cable car station at Sugarloaf Mountain, Rio de Janerio, Brazil 1929 (Le Corbusier Foundation)

Corbusier's biomorphic building across the landscape and into the Morro da Urca. After considering Le Corbusier's sketch of the *Plan for Rio de Janeiro* (1929), the Sugar Loaf Mountain's dramatic position must have compelled Bo Bardi to echo his two-storey serpentine structure as a way to rehabilitate its constructed landscape, but not as a new super-structure. Firstly, Bo Bardi's drawing almost retaliates against Le Corbusier's *Plan for Rio* (1929) in that the two-storey serpentine structure terminates at Morro da Urca —it simply disappears into the mountain. The new modern barrier is "broken down." Bo Bardi's rehabilitation of the historical station displays luxuriance in the form of the landscape—traversing from the green stage-set through to the view. And secondly, her drawing resembles Le Corbusier's 1936 *Pao de Acucar* interior sketch with a view to the oceanscape. However, therein she retains the existing building and otherwise adds another storey. Bo Bardi inserts in the corner of the room a naturally-shaped Sugar Loaf—a stony spoil to hear the waves of the ocean inside. Her poetic rehabilitated interior-landscape becomes a "plant" room, a dry garden for drinking-in. Fundamentally, apart from Le Corbusier's and Burle Marx's serpentine designs, the female architect Lota de Macedo Soares, specifically her Landfill Park project, guided Bo Bardi's "dynamic" process of encapsulating the living environment and salvaging its existing buildings.

The Organic Environment: Bo Bardi's Dynamic Landscape Process

Bo Bardi's writings on architecture and nature, especially her industrial-landscape architectural projects, merit close attention because of the pressing issue of adaptive reuse

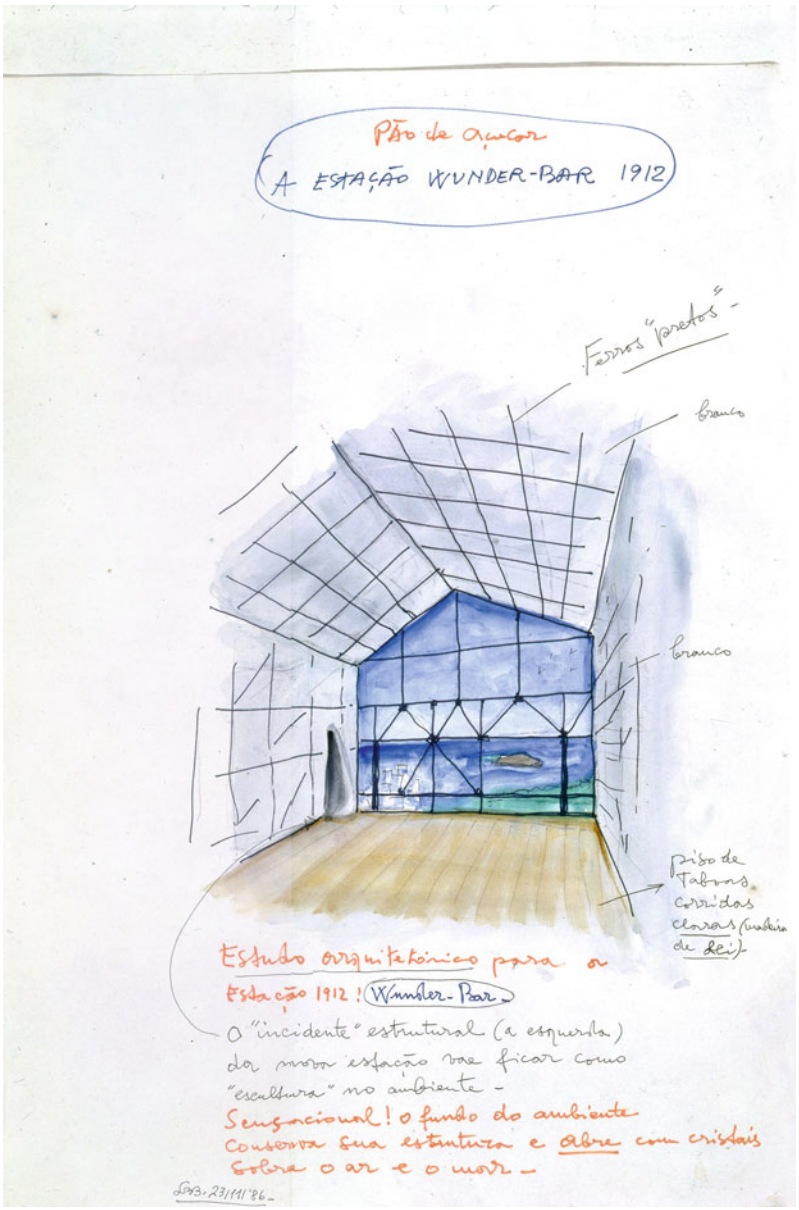

Fig. 3.6 Lina Bo Bardi's rehabilitation of Morro da Urca's 1912 cable car station converted into a Theatre and Bar at Morro da Urca, Sugar Loaf Mountain, Rio de Janeiro, 1986 (unrealized). Lina Bo Bardi in collaboration with Andre Vainer, Marcelo Carvalho Ferraz and Marcelo Suzuki (Instituto Lina Bo e PM Bardi)

today. She was not formerly trained as a landscape architect, but her writings in Italy and Brazil indicate her fervour for nature within architecture. In 1943, she wrote "Architecture and Nature: The House in the Landscape," published in Italy's *Domus*. Therein, she referred to American houses that have "a deep connection with the landscape and the life of the surroundings" (Bo Bardi 1943: 22), ones in desolate places bristling with cactus and others in mountainous landscapes. Little did she know, she would realise similar project types in Brazil. In 1945 Bruno Zevi (who studied in the United States; worked with Wright; and then edited a journal with Lina Bo) published "Towards an organic architecture" in post-war Italy. This essay featured Wright's celebrated Fallingwater House (and following this was Wright's book *The Natural House* published in the Italian language). Wright's ideas about the house in the landscape informed Bo Bardi's thinking about architecture and merging with plants. This is evident in her Brazilian publication of "*O Jardim Morumbi—Arquitectura Natureza*," (*Habitat*, no. 10, 1953), which featured her Glass House within its lush environment, which bestowed Wright and Zevi's ideas on organic architecture (we must not forget Bo Bardi worked

with Zevi in Italy). Her projects are "organic," but in a reactionary way by including Brazil's luxuriance and its unlimited possibilities.

Bo Bardi asserts the overall gist of the American environment in her book *Propaedeutic Contribution to the Teaching of Architecture Theory* (1957). In this, she includes Wright's respect for nature in his houses located at Wisconsin and Taliesin in the United States. As registered in his *The Natural House* (1954), for Wright, "a growing idea of simplicity as organic…was new as a quality of thought, able to strengthen and refresh the spirit in any circumstances" (1954, 1971 ed., 15). "Organic architecture" was relevant for Bo Bardi since it applied to Brazilian nature. For her it "endeavoured to surrender without resistance and without wanting to dominate it, accept it, love it, get from it a regard for primary rustic materials" (de Oliveira 2006: 95). Valuing Wright's notion of *simplicity* as organic architecture, Bo Bardi thus believed in the necessity to "design green areas, consolidate the terrain and avoid erosion" (Veikos 2014, 67). Her projects, however, strayed from Italian models towards Rudofsky's Brazilian-American examples and, for instance, making apparent botanical and cultural elements through the site, as well as its rustic materials.

The same year Wright published *The Natural House*, Pietro Maria Bardi also wrote "Is Man Anti-Nature?" While her husband's article was about man being against nature as, for instance, building major roadways, there were other key figures that informed Bo Bardi's environmental stance of the Amazon's deforestation. These were the United Nations Educational, Scientific and Cultural Organization (UNESCO) director Julian Huxley and American zoologist Harold Coolidge. Bo Bardi was well-aware of the Amazon's extensive deforestation problem (cited in Veikos 2014: 67). In her *Propaedeutic Contribution to the Teaching of Architecture Theory*, Bo Bardi also includes an illustration of the Amazon tree roots interlacing the Para church missionaries in Brazil, informing how she designed vegetated walls. Bo Bardi, however, did not travel to the Amazon herself (email correspondence with Ferraz, 19 February 2016). In a letter to Bardi on May 21 in 1956 from Bo Bardi, she wrote: "I'm no longer afraid to lose my roots, I feel an epiphyte's roots growing within me (bromeliads and orchids) and I think they will be good and strong" (quoted in Carboncini 2014: 187). The letter's content possibly referenced British émigré botanist Margaret Mee's paintings. In fact, Mee was "one of the first environmentalists to draw attention to the deforestation in the Amazon River basin" (Lima 2015: 214) in 1956.

After the difficult times of the Brazilian dictatorship in 1970, Bo Bardi was involved in movements straight against it. Straight after the 1973 World Oil Crisis, around the time the Flower Power Movement arrived in Brazil, Bo Bardi continued to generate architecture evocative of the landscape. Amazonian forests were being destroyed by clandestine loggers, partly to allow for the construction of major highways. Petrol (like perfume) was considered a luxury good and so ethyl alcohol produced from sugarcane to power cars was one way to overcome this crisis, since it was cheaper than refined petroleum products.

In 1977, for instance, *Rastro* Perfumery's President Joao Carlos Basilio da Silva hired Bo Bardi to design a new distillation plant in Santana de Parnaiba, outside São Paulo (Fig. 3.7). At the outset, she produced a series of sketches of soaps and others slathered over the hills. She made another set of sketches dated November 1980, depicting groups of orange hexagonal boxes or "soapettes," roofed with plants, borrowing ideas about organic architecture. Bo Bardi's sketches mock the expensive and damaging feats of industrial luxury (the perfume factories), polluting the environment. The project ended just at the moment when Brazil's reached inflation became exorbitant, which led to the commissions involving repurposing abandoned buildings. Rastro Perfumery project was thus a turning point for Bo Bardi, driving her to increasingly tackle environmental issues. Other than perfumed luxury goods and petrol, remnant architecture became a salvageable luxury (Condello 2014a).

Salvaging Luxury and Luxuriance

Bo Bardi opposed luxury, but nonetheless, she was pro-luxury too. She detested, for instance, the pomp and luxury from Versailles, and especially the pseudo-Versailles mansions that once surrounded São Paulo's Trianon Park (the same location where her celebrated São Paulo Art Museum, MASP, was later constructed), replacing the old Belvedere Trianon on Avenida Paulista. "MASP's luxury came from space, plants, water, art and activities" (Moore 2012: 219), but she offered more. Within the gallery space itself, Bo Bardi made the walls vanish. Instead she imagined a "cologned" space, not one filled with popular fragrance (such as the Carnival Club's lemon-scented *Lanca*-Perfume), but one filled with rows of gilt–framed floating paintings. Set behind sheets of glass like a salver with upturned empty *Christian Dior* perfume bottles (Bo Valentinetti 2004), anchored to the first floor, these paintings become artistic luxury labels, accommodated within a vast glazed shipping container.

Bo Bardi also brought Amazonian and Northeastern Brazilian luxury within the MASP. The main exhibition floors were carpeted with industrial black rubber (Comas 2009), an indigenous raw material, to absorb pedestrian

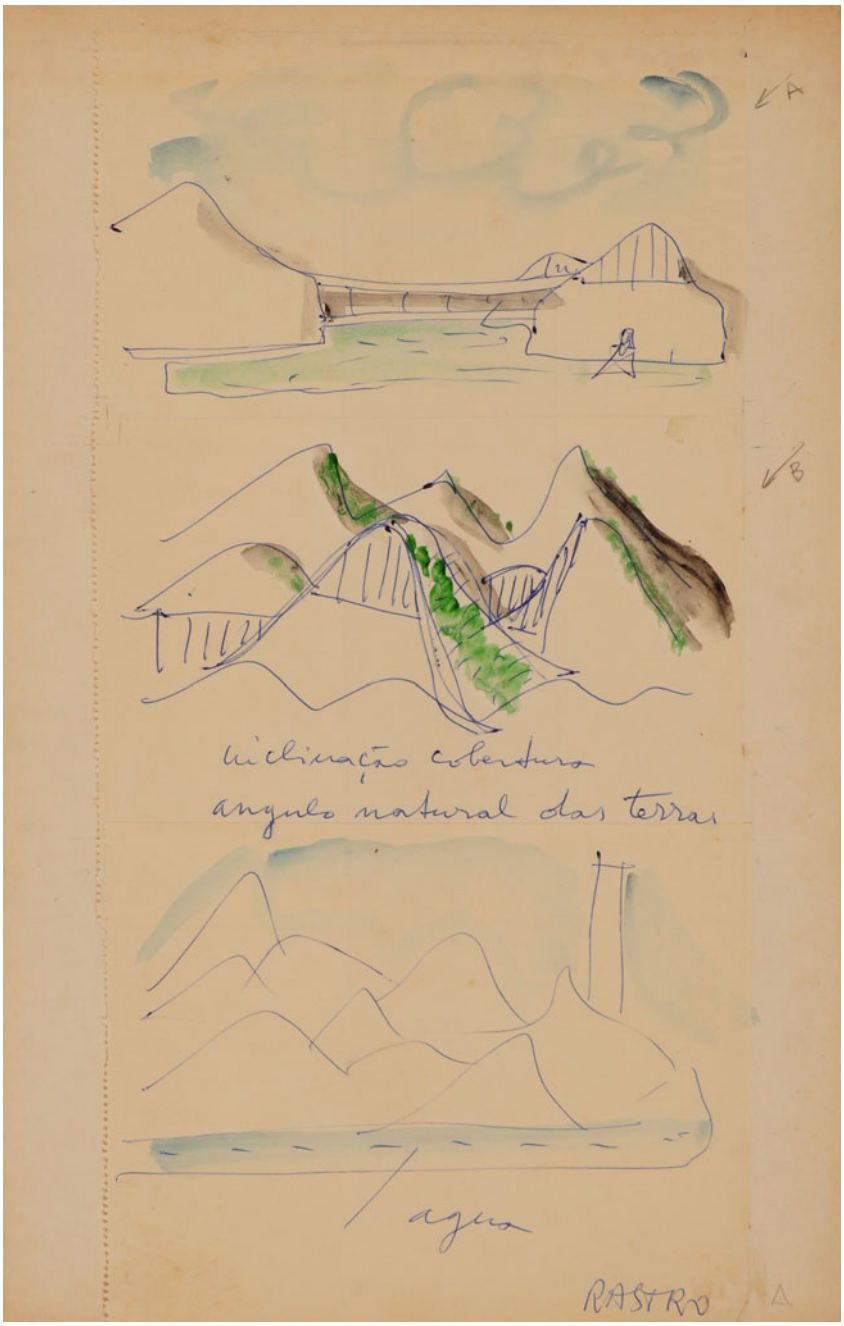

Fig. 3.7 Lina Bo Bardi's initial sketches of the Rastro Perfume Factory which follow the natural incline of the hill, 1977 (Instituto Lina Bo e PM Bardi)

traffic. As I wrote in *The Architecture of Luxury* (2014), this use of rubber resonates with Manaus's Opera House carpeting of the material outside in its perimeter ring-road so as to minimise street noise (Condello 2014a). At MASP's entrance, a large boulder was mounted vertically as well as a cactus plant. Together both the rock and cactus plant (which today no longer exists), was a powerful gesture to greet visitors (Lima 2013), since it represents pre-Columbian luxury and established São Paulo's art-heart. When MASP was inaugurated in 1968, Queen Elizabeth of England was invited to the event to unveil the imposing museum's engraved rock-plaque (*The Canberra Times*, 9 November 1968; Tentori 1990), to promote the gallery's artistic and environmental prowess. If, however, one visits or lives in glass houses, then one does not, metaphorically, "throw rocks at them." Bo Bardi thus became critical of new luxurious buildings and instead salvaged indigenous luxury objects existing in Brazil's Amazonia.

Contrary to the view that she opposed paintings as luxury goods, the Bardis most certainly lived a luxurious lifestyle in Morumbi. The Glass House was filled with all of the modern conveniences and its walls were, and still are, adorned by

exuberant artworks and objects—the place was set in a rich and luxuriant landscape in the sense of its vegetation—and its central courtyard becomes the organic heart of the house, akin to Rudofsky's patio-house. "An environmentalist, long before the term existed, Bo Bardi had the forest replanted around the building" (da Costa Meyer 2002: 185). There were "absolutely no screens" (Cavalcanti 2003) so as to not distract anyone from its view, a luxury in itself, out towards a lush forest. Bo Bardi's house guests, Saul Steinberg and his wife Hedda Sterne stayed there in 1952 and labelled the house as "poetic," – no screens made it poetic, but it was a "scene of a nightly 'insect massacre'" (Ferraz 1999; Smith 2006: 256; Bueno 2008: 129). Currently, the place is overgrown and one can no longer see the Glass House's horizontality (as illustrated in the 1950 *Habitat* magazine) nor its view of the luxuriant forest.

The term "luxuriance" originated with the French Picturesque garden at Trianon in Versailles. There, it referred to the exuberance of foliage flowers in thriving conditions. By 1956, "tropical flora, Bo Bardi wrote, citing Burle Marx, should be used 'to bring the natural landscape back within the confines of the modern city'" (quoted in da Costa Meyer 2002: 185). Learning from Burle Marx as well as de Macedo Soares, Bo Bardi's future preservation works in Brazil would shift luxuriance back to nature, not in the form of thriving conditions as such but thrifty ones—to what is reconstructed as picturesque yet industrious.

Bo Bardi was enamoured with the luxuriance of the tropical and semi-arid flora (and furniture) of Recife and Rio de Janeiro, as well as Minas Gerais' minerals. So much so, she wilfully forgot Italy's Mediterranean landscape, savouring instead cacti and other succulents. Within her Brazilian sites, however, Bo Bardi integrated the modern landscape with raw materials, such as the abundant eucalyptus timber (a prevalent Australian tree species found in central and South America, and California). Together with Rudofsky's idea of the open-air room, which facilitated Mediterranean lifestyle outdoors in the form of an atrium in Brazil and elsewhere (Guarneri 2003; Lejeune and Sabatino 2010), in effect, Bo Bardi produced incomplete building-patios melded with tropical plants and furnished with hammocks.

Today people often associate Brazil with colourful hammocks suspended in the air and secured to trees near a coastal landscape, a stereotypical image of laid-back tropical elegance, which is indeed a form of luxury. The hammock, "begins most simply with one's suspension in the air: you achieve a floating sensation, like a leaf" (Mack 2008: 109). Bo Bardi's landscape design concern was prompted by observing indigenous Amazonian forest furniture—the pre-Columbian *hamaca or rede* (in the Portuguese language). Traditionally, hammocks were used to relax the body, elevate it from the ground away from snakes and insects, offer protection or used in mourning ceremonies. Lucia Suane's 1946 painting *Enterro na Rede* (A Hammock Burial), for example, displays two figures carrying a cocooned corpse in a hammock through the landscape, demonstrates an indigenous luxury theme that is inherent in Bo Bardi's work, specifically when observing the MASP building design. The hammock is the first form of luxury Bo Bardi adapted because it is a necessary form of Brazilian luxury, an indigenous one.

In 1948 Bo Bardi was designing hammock-chairs using local materials, evocative of the on-deck hammocks used in Brazilian riverboats (Lima 2013: 54) for sleeping-in, as they are light-weight, easily transportable and do not consume so much space. She also included illustrations of hammocks in use in the first issue of the 1950 *Habitat* Magazine (Coelho Sanchez 2004: 38; Ferraz 2008: 59), exemplifying a form of indigenous everyday luxury by their basic simplicity and availability to all people. Bo Bardi thus provided a sustainable idea of luxuriance in Brazilian culture through the hammock.

Other than riverboat's hammocks, Bo Bardi's fascination with hammocks in a "living" patio was prompted by Warchavchik's simple architecture along the coastal resort of Guaruja, near São Paulo. This is the case when he designed Guaruja's beach houses with hammocks, such the Raul Crespi house (1942–43) and at Majorie da Silva Prado weekend hut (1946), (Lira 2011), with its sensitive use of raw materials, an instance of elegant primitivism (Comas 2009: 181). Warchavchik's photograph of Bo Bardi, languidly reclined in a hammock, at the latter beach pavilion is significant since he adapted local materials, such as thatched roofing, resembling a Brazilian wattle and daub house.

About 20 years later, at the 13th Milan Triennial's (1964) Brazilian Pavilion, Costa exhibited a living room furnished with hammocks, compellingly suspending them in the air (Fig. 3.8). The display also showed signage emblazoned with bold green letters instructing visitors to "*RIPOSATEVI*"—rest (Suzuki 2012). Both Costa and Bo Bardi emphasised the "importance to the everyday doing of the common workers from all the origins that, blended here in Brazil, left a special heritage of what existed in terms of simplicity and 'poverty'…the opposite of the pseudo-refinement of the rich houses" (Suzuki 2012). This outlook of Brazilian simplicity featured in her architecture and landscape designs as well, as opposed to what appears to be a reaction against the *Italianate* depiction of a hammock. This is especially the case with the Florentine Antonio Frilli's white ornate marble sculpture entitled *Nude Sleeping in Hammock* (ca. 1890). "Frilli's hammock was like those that allowed sailors to sleep through heavy seas" (Rinehart 2013: 10). Strangely, Bo Bardi's modern MASP concrete frame is a type of stripped exaggeration of Frilli's sculpture made into a simplistic, unornamented crate-form, complete with brackets.

Fig. 3.8 13th Milan Triennial's Brazilian Pavilion, 1964, designed by Lucio Costa. A living room furnished with hammocks and signage emblazoned with bold green letters instructing visitors to rest (Instituto Antonio Carlos Jobim—Acervo Lucio Costa—Publi Foto—Milao)

Meanwhile, Bo Bardi devoted much of her time in the city of Salvador to salvaging buildings. In Bahia, Brazilian filmmaker Glauber Rocha introduced her to the subject of the *cangaceiros* (Fig. 3.9). These are violent but stunningly-garbed Brazilian bandits or highwaymen of the 1920s and 30s, known for their barbaric-type the luxury, hosting banquets. They also stole perfume from the rich and gave it away to others. In 1950, Rocha sent her a postcard of *cangaceiro*, which featured *Azulao* (quoted in Rubino 2009: 134), with his distinctive leather hat with three stars, each point symbolizing the earth's elements—air, fire, earth and water. As recognizable emblems of nature's power, other *cangaceiros'* hats "were so ornamented" with rosettes and stylized cacti "that one would think they had dressed up for a ball" (de Mello 2010: 246), triggering Bo Bardi's 1950s "Outskirts Ball," for example, at São Paulo's pre-existing Trianon Park.

At São Paulo's *Clube dos Artistas e Amigos da Arte* (Trianon Park Club), before the MASP building was conceived, Bo Bardi organised a ball.

> The ball was entitled "Outskirts," and the décor consisted of all the staple commodities of the rubbish dump: empty cans, twisted metal, rusty tins, scrap-metal, broken dolls, broken bottles, rags, dilapidated objects, rotten rope, and rusty wire—a veritable example of trash bin aesthetics….
>
> The ball was something of a scandal: the artists came, but the more rewarding public in box-office terms, the café society that generally goes to such entertainments, was scared off by the rubbish and the invitation, which were taken as an insult.
>
> (Bardi 1970: 87)

Borrowing elements from the Northeast, from the *cangaceiro* lifestyle in the semi-desert bush, and informed by Burle Marx's Recife cactus garden, the outskirts for Bo Bardi represents the authentic Brazil—it was not ostentatious but culturally-luxuriant.

Her *Solar do Unhão* restoration, for instance, was a transformation of the decorative leather hat's elements by her into the Popular Art Museum (1959–1964). There, she included an intriguing square, inlaid with white stone in a star configuration. This concern with *cangaceiro* lifestyle in the Brazilian outback continued throughout her late career—in the form of survival and architectural conservation for the people. The built environmental-intervention demonstrated an "ecological attitude. She made positive use in her architecture of the unforeseen, the casual, the precarious, and the lack of means" (de Oliveira 2015: 25). Additionally, "In Bahia, the luxuriant natural environment encourages the brightest floral patterns that can be imagined" (de Mello 2010: 246). Roaming freely in the semi-arid desert, the *cangaceiros* lived in a natural setting and were "well-endowed with potential hideaways and a nearly impenetrable vegetable cover" (de Mello 2010: 236). Apart from the configuration of the square, inorganic cactus plants defended Bo Bardi's conservation of the Pompeia factory, not only for ornamental purposes but also for protection for this is where the vegetal luxury arises, that is, through architecture, culturally.

In 1977, *Servico Social do Comercio's* (SESC's) president Jose Papa Junior commissioned Bo Bardi to renovate

Fig. 3.9 Corisco, a Brazilian bandit or *cangaceiro, ca.* 1930s. *Cangaceiros'* leather hats were ornamented with rosettes and stylized cacti. In the background one can see a dry reed-fence (Acervo Instituto Cultural Chico Albuquerque)

the industrial factory at Pompeia, a working-class district in São Paulo strewn with abandoned and wasted building spaces. In collaboration with Andre Vainer and Marcel Ferraz, Bo Bardi converted the former kerosene steel drum factory into a leisure centre (dos Santos 1996; Subirats 2003). Between the three towers and the existing sheds, Bo Bardi created an "urban beach" (Carranza and Lara 2014; Bader 2014). This is evident since "she always had an affinity with the beach—such as Rio's beach" (de Oliveira 2006: 327), including Guaruja's coastal landscape (the Pearl of the Atlantic). Additionally, she thought about Recife and Salvador's bush bandits and their hideaway places.

In renewing an urban cavity within the Pompeia site industrial factories, Bo Bardi designed a pair of multistorey concrete towers, one of which camouflages what could have become a carpark. Each tower links one another by means of reinforced concrete walkways resembling the enchanted twines of a hammock's knot. One tower accommodates dressing rooms and bathing facilities. The other tower is stacked with swimming pools and gymnasium, in the form of a "vertical beach" derived from beach activities, such as volley ball. Between the new towers and existing factory, she designed a long beach-street constructed of timber planking. Here, Bo Bardi implemented a model derived from Rudofsky's *Streets for People* (1969). Pompeia Factory's street exemplifies cultural luxuriance within the city of São Paulo since people continue to meritoriously use the urban cavity at their leisure. Therein, is obviously a relation to de Macedo Soares's stretched-out landscape and Burle Marx's landscape works too, specifically the artificial lake-landscapes and the stony mosaic-carpets that trickle through the site as gutters. Intriguingly, on the cover of the 1944 Brazil issue of *The Architectural Review* (Deckker 2001: 160), is literally depicted an image of the vertical beach. Herein, the landscape is switched to 90°, anticlockwise, and more than likely Bo Bardi was well-aware of the vertical beach.

Moreover, within the SESC workshops, Bo Bardi's artificial lake-landscape employs cultural luxuriance in the form of stony materials, referencing Zen gardens. These interior lake-landscapes are paved with stone flooring (Fig. 3.10). Presumably, during her sojourn to Japan in the 1970s, Bo Bardi must have experienced Mirei Shigemori's modern Zen gardens. Bo Bardi's meandering sites allude to Japanese esoteric cosmology, *Onmyodo* (or the way of yin and yang). "A yin/yang configured reflective pool on the yin side," for installation artist Dan Graham, "creates an artificial landscape by using natural large-sized pebbles, partly submerged under a thin layer of water. The floor on the non-water yang side provides the appearance of being slick industrial surface" (Graham 2014: 106), a reference to the World Oil Crisis. Bo Bardi created luxuriant, but gritty waste-spaces—salvage yards that were made children- and elderly-friendly, and culturally and ethically sustainable.

With respect to botanical luxuriance, in 1980 she designed a boundary wall adjacent to Pompeia and Venancio Ayres Avenues with vertical plantings: with climbing flowering native passionfruit flowers. Another sketch shows a garden planted with aromatic and medicinal herbs used in traditional popular medicine (de Oliveira 2006: 234; Veikos 2014: 128). Yet native and foreign plantings were not implemented, due to the lack of economic resources.

Between the edges of the gymnasium tower floors and the threaded concrete walkways there are narrow recesses, which are supplanted and then replanted artificially with steel flowers. These are abstracted Northeastern cactus plant flowers—made out of steel reinforcement rod off-cuts—and each of them are topped with large red beads. On each floor, flanked on either side of each walkway are positioned the flowers to prevent children and elderly from falling. These abstracted vegetal-constraints are reminders of the semi-arid desert where the *cangaceiros* would abscond themselves from other attackers, in Bahia or Pernambuco's outback, for survival. Together with the cover of the *1944 The Architectural Review*, and Zen gardens, Bo Bardi's Pompeia

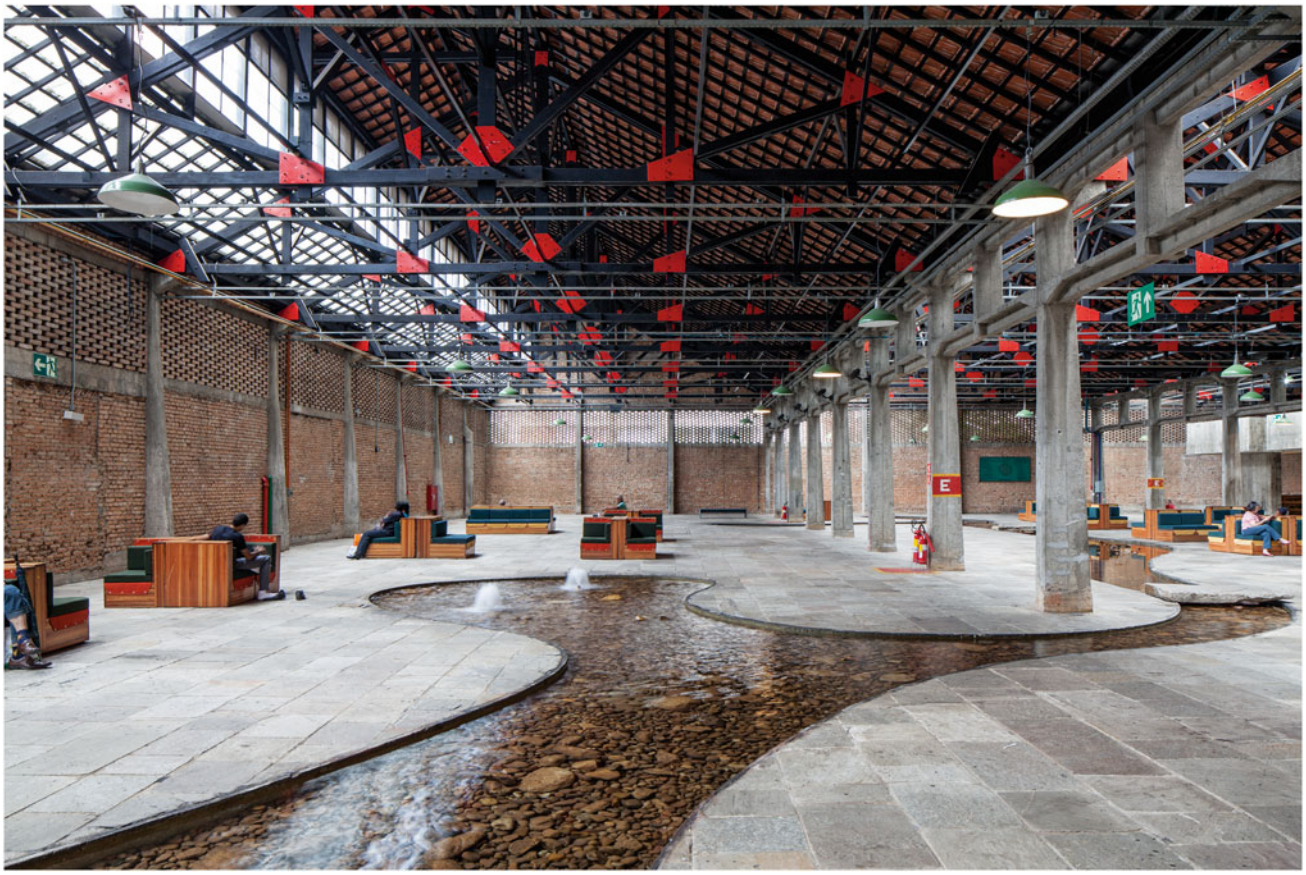

Fig. 3.10 SESC Pompeia workshop with its artificial lake-landscape paved with stone flooring (*Photo* Leonardo Finotti 2013)

Leisure Centre is analysed as herein as a "vertical beach," an industrial theatre-set for each season planted with perennial steel foliage. The vertical beach's pairs of reinforced steel cactus flowers on each floor are also a tribute to or interpretation of Mina Klabin Warchavchik's São Paulo abstract gardens—they grow out of the concrete slab and each paddle-rib is welded to the core with steel off-cuts (Fig. 3.11).

Returning to 1951, Nervi was the conduit for Bo Bardi to experiment with reinforced concrete elements planted with tropical foliage in São Paulo. When the Bardis were living in the Glass House, they invited Nervi to visit and lecture on reinforced concrete structures to students at the São Paulo Art Museum School (Lima 2013). Bo Bardi was designing large-scale projects such as the *Museu a Beira do Oceano* in Sao Vicente. It is distinguished by its pre-stressed concrete frames, an atrium and open-air gallery with tropical and cacti plants. Between 1951 and 1953, Bo Bardi, Nervi and his son Antonio "eventually opened a studio in São Paulo" (Martinis 2013: 113 and Lima 2013: 62). The Nervi's collaborated with Bo Bardi as engineering consultants on the multi-storey *Taba Guaianazes* Complex (1954) for São Paulo. The complex comprises three auditoria, patios and gardens and in the section's foreground is a building, resembling Warchavchik's Morumbi Chapel façade with its recesses for timber struts and her future Pompeian tower. Herein, *Taba Guaianazes* Complex is the primary project that outlines her concern for environmentalism by its inclusion of a wall of verdure (Fig. 3.12 a and b).

There is, however, a connection between Bo Bardi's landscape architecture in the southern hemisphere and what we now consider as "sustainable." In 1951, at the initiative of President of São Paulo Museum of Modern Art Museum Francisco Matarazzo Sobrinho, Australian architect and planner Gyle A. Soilleux was invited to exhibit his work in Brazil. He sent Matarazzo drawings of theatres and the replanning of Darwin—a tropical frontier town in the Northern Territory (*The Argus*, Thurs 2 Aug, 1951). Darwin (originally named in honour of English naturalist Charles Darwin), is renowned by many for its relaxed charm, similar to Brazil. Matarazzo had chosen Soilleux because of his involvement in planning New York's United Nations Headquarters, with Wallace K. Harrison, Oscar Niemeyer, Le Corbusier, Julio Vilamajo and others in 1947 (Carranza and Lara 2014). Presumably, Bo Bardi visited São Paulo Museum of Modern Art Museum and saw Soilleux's

Fig. 3.11 SESC Pompeia's "vertical beach" with steel cactus flowers. *Mandacaru* cactus flower made out of steel reinforcement rod cut-offs welded together and used as balustrades located on each floor in pairs within the gymnasium tower (*Source* Instituto Lina Bo e PM Bardi)

Australian exhibition, influencing her collaboration with the Nervis.

Although the *Taba Guaianazes* Complex was unrealized, it provided both Bo Bardi and the Nervis with the opportunity to treat constructed terraces that were under construction in Brazil with vegetation. This is especially the case when Nervi was commissioned in 1952 to prepare detailed drawings of Francisco Pignatari's covered swimming pool in São Paulo (at the sumptuous house designed by Oscar Niemeyer). Two years later, Burle Marx designed Pignatari's gardens, patios and ornamental walls, using exposed concrete with its Incan and Aztec sources. Within Pignatari's garden one finds a wall of verdure marked by a concrete wall considered "a true architectural element" (PM Bardi 1964: 50). Bo Bardi adapted Pre-Columbian metaphors within her early Brazilian works, primarily her São Paulo Art Museum

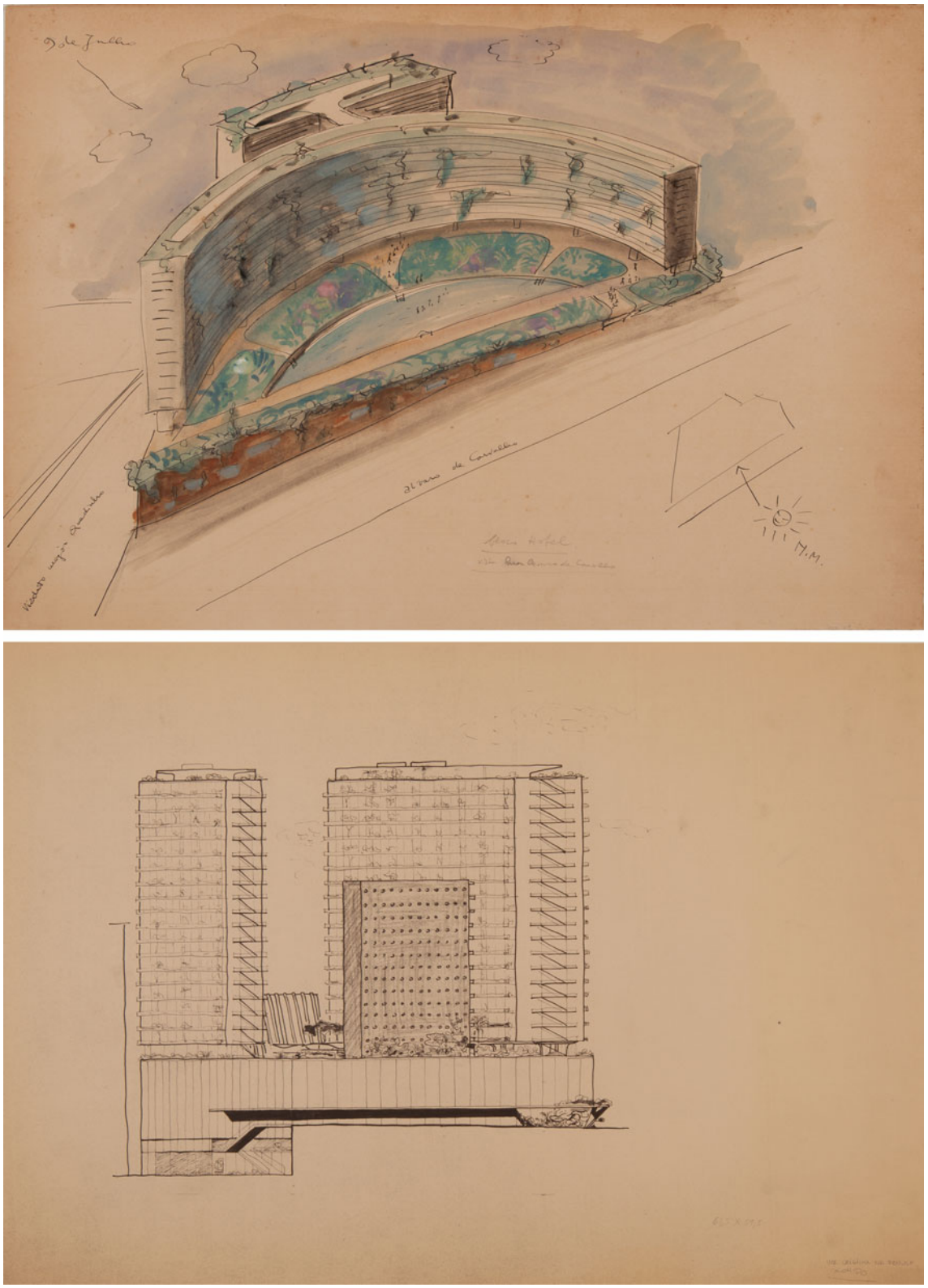

Fig. 3.12 **a** and **b** *Taba Guaianazes* Complex in São Paulo, Lina Bo Bardi in collaboration with Pier Luigi Nervi and his son, displaying in the foreground its wall of verdure. The *Taba Guaianazes* Complex section shows in the foreground a building, which resembles one of her future Pompeian towers (*Source* Instituto Lina Bo e PM Bardi)

(MASP) with its Aztec terraces and cacti landscape mantles (Condello 2014b). Prior to this, Bo Bardi inserted a breathable wall at the *Taba Guaianazes* Complex.

Bo Bardi's wall of verdure at the *Taba Guaianazes* Complex's entrance was culturally significant since it uncovers the indigenous vernacular of the Amazon's natural wall of trees. She encapsulated pre-Columbian sources into existing buildings. Her 1950s *Habitat* publications documented the well-groomed and sinuous gardens designed by Burle Marx and she acknowledged the Amazonian community through the name of the building and the indigenous plantings she included, for instance, tropical bromeliads. She included tropical garden walls in her designs for São Paulo's City Hall (1990–92) as well, a conversion of the 1924 Palace of Industry as featured on the cover of the Lina Bo Bardi monograph (Ferraz 2008). There, an office complex with a "living frieze consisting of flowers, grasses and bushes in various colours" stretches across the landscape of up to 200 metres (Bader 2014: 338). Bo Bardi's garden wall designs represent Amazonia's long single-stretches of "wall" that tend to fall down all of a sudden by nature or during deforestation. She inserted long concrete walls planted with a surfeit of greenery for the city as propped-up fallen lands, as sustainable-theatrical backdrops as forms of resilience.

Multifarious Plant Rooms

In the late 1960s, Bo Bardi likened Jorn Utzon's spectacularly innovative Sydney Opera House in Australia to a conventional theatre space (Bo Bardi 1967a, b: 85), a reaction against architecture's excess. This is especially the case with its natural-looking forms with blades of palm fronds resting on a pre-Columbian platform. Instead, she preferred Antonin Artuard's concept of a simple outbuilding or barn as the basis for a theatre, as she puts it, "lime-washed garage" (Bo Bardi 1967a, b: 85). Her MASP building was evidently contradictory—conceived as a luxurious "stables-theatre" (Condello 2014a: 72), a temporary structure made permanent and look unfinished with its imperfect concrete surfaces. And when reflecting upon Bo Bardi's ideas for a multi-storey complex she designed for São Paulo with the Nervis, it featured auditoria and a long concrete wall with tropical plants. Being in the same hemisphere with similar tropical climatic conditions, possibly Australian precedents informed her work, but not the Teatro Oficina for it was a simple "garage"—and empty mechanical workshop minus the grease-trap, a theatrical plant room (Fig. 3.13).

In 1984, Bo Bardi salvaged the disused 1920s rectilinear brick building into the Teatro Oficina in collaboration with Brazilian architect Edson Elito (Lira 2012). Within the two longitudinal sides of the theatre, temporary pipe scaffolding became permanent balustrades on the three galleries with timber planking floors and furniture. The interior consists of actual plants climbing scaffolds, and a mechanised fountain pouring water into a reflecting pool. The positioning of the dressing rooms beneath the new steel roof was unusual, contrary to where they are usually positioned, near the stage at ground level was strange—so they would not be damaged by water or fire. Elito was the one who decided to include a new retractable steel roof, allowing one to view the sky during performances. When open, the theatre permits the weather and street noise, a transparent industrial structure through the existing tree branches outside as well as from the car park.

Bo Bardi considered Le Corbusier's advice to permit the theatre to go "out onto the squares, the street" (de Oliveira 2003: 186). But she converted the abandoned building into a "street… to build a space that had a bond with the earth" (Correa et al. 2012: 49, 51), a reference to Italy's buried Pompeii or Amazonia's new roadways. Rather than following on from Le Corbusier's advice, the SESC Pompeia Complex as well as the Teatro Oficina spoliates Rudofsky's principle of the street. There is no actual "green rooms" reserved for the actors to rest within this venue. For Bo Bardi the green, or waiting, room was simply—a "plant room"—not with walls painted green (or to accommodate theatre machinery) but with a retractable ceiling-constraint that can open to the air. And the stage itself is a corridor with a barricade beneath the raked ground floor. During the day, Teatro Oficina is a street. At night-time, Teatro Oficina becomes a 24-hour lavish night club electronically illuminated. Other than the bond with the earth and the raked floor, she converted the old brick building into an open-air theatre—a "tropical fire-escape," a radical but innovative space.

In 1986, Bo Bardi realised another plant room near her Glass House—the Morumbi Studio. Therein, its interior is constructed out of a eucalyptus timber and the entire place is nestled amongst a real bamboo thicket. Bo Bardi spoliated her Morro da Urca project to create the studio as her own rendition of a "green cable room" so as not to waste unrealized projects, but spoliate them elsewhere.

Meanwhile in Minas Gerais, Bo Bardi observed available raw materials, such as bamboo and eucalyptus. Bo Bardi's bamboo drawing, produced in the 1950s, expresses her biological interest in using this material as a railing tied

Fig. 3.13 Teatro Oficina, Lina Bo Bardi in collaboration with Edson Elito. Permanent scaffolding with climbing vines interpreted herein as a tropical fire-escape (*Photo* Leonardo Finotti 2009)

together, to form a light and porous frame to divide spaces (Fig. 3.14). Originally, it came from the bamboo chicken-coup structures (Fig. 3.15). As an early form of natural *brise-soleil*, she would reuse this frame in a rustic manner in her Cerrado Church design (1976–82) in Uberlandia, Minas Gerais. In this case she replaced the bamboo railing with slender eucalyptus trunks to encourage air to flow through the structure—a rustic *brise-soleil*.

In 1987, Bo Bardi's Coaty restaurant conversion of abandoned buildings at *Ladeira da Misercordia* in Salvador, Bahia, employs the reed plant profile borrowed from nature as walls. On the project's sketches, the name of the restaurant was a play on the word *coati*, a native Brazilian mammal. Both Bo Bardi and Ferraz decided to call it "Coaty" (email correspondence with Ferraz, 19 February 2016), by creating its five new crinkled-concentric shells or coatings. The plan, resembling Uberlandia's Cerrado Church, is composed of new circular bands of concrete tanks, some of which interlock, are accessed to the first floor via a spiral staircase—each of them recall empty *Esso* drums with its rusted-punctuated passion-fruit like openings. She "re-fused" the form of the steel drum as a barricade and inside imagined a naturally climate-controlled space within concrete-reed tanks (Fig. 3.16).

Coaty Restaurant's crinkled-concrete panels demonstrate both botanical and cultural luxuriance. Reed panels, for Bo Bardi, "were based on the riffled blades of palm grass (aka *curculigo* leaves) that grew near her home" (Lima 2013: 190). Reed exterior panels extended within the Coaty Restaurant's perimeter and inner courtyard as well, accommodating a large mango tree. Architect-engineer Lele Filgueiras Lima developed the prefabricated modular ribbed concrete panel system used for construction (Lima 2013: 193). These profiles were developed so that they could be cut into segments and adapted to Bo Bardi's curvilinear geometry (Lima 2013). The experimental panels themselves represent ecological concerns as well as revealing Lele's compliant and low-cost technological building system, a virtuous experiment (Condello and Lehmann 2016). This is how it is connected with sustainability, but it is artificial and it is another contradiction because it is new and not recycled. The reed motif is recycled from vernacular architecture. The restaurant's structure is "seem[ingly…] a more immediate borrowing from the corrugated metal roofs on the homes in the

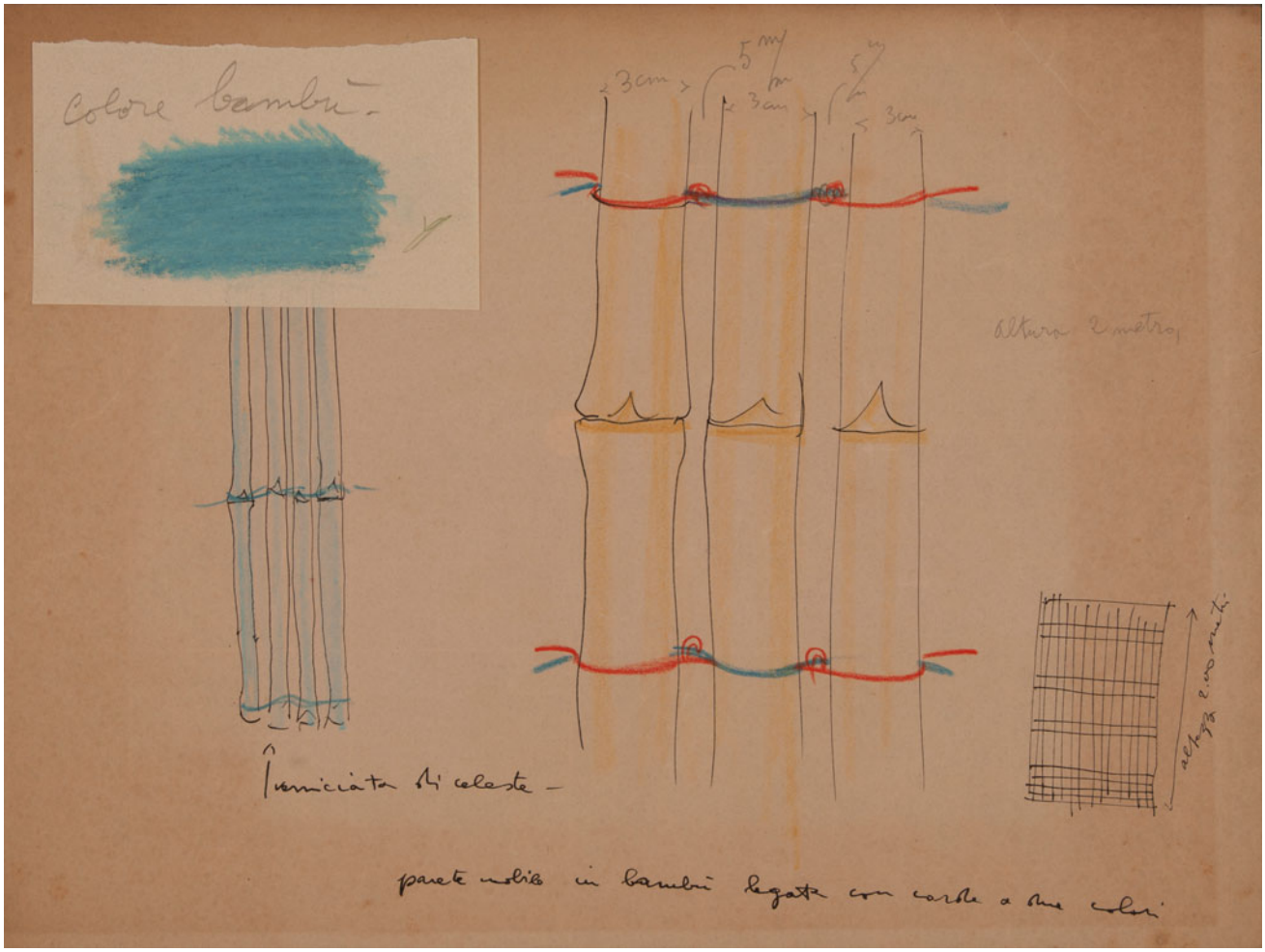

Fig. 3.14 Bo Bardi's bamboo railing drawing, ca. 1950s, an instance of architectural-vegetal luxury (*Source* Instituto Lina Bo e PM Bardi)

neighbourhood" (Lepik and Bader 2014: 328). Primarily, Bo Bardi saw this design as "an architectural and urban experiment. It amalgamated 'structural stabilization, adaptive reuse, and simple construction technology and serving as a model for future developments throughout the Pelourinho district'" (Lima 2013: 190). Bo Bardi's band of concrete-reed tanks for the restaurant becomes a new open-air green room for the city, realized industrial poetry. Abandoned for about two decades, today the buildings located on the *Ladeira da Misercordia* project is in disarray, but is registered as part of the 2016 World Monuments Fund, considered as an important modern adaptive reuse project.

Bo Bardi's luxury experimentations progressed from the *rede* (the hammock) to the reed—the crinkled concrete-reed panel as an architectural-vegetal luxury form. So in this work what is strikingly evident and exuberant is how she adapted the reed plant profile as a form of botanical and cultural luxuriance. And she invented simple structures, especially the rustic *brise-soleil*, an example of "rustic-sustainability."

Salvaging Sites with Botanical and Cultural Luxuriance

After analysing Bo Bardi's late projects, the SESC Pompeia complex marked the culmination of all of the luxury-type projects. Now, it is important to discuss the origins of her inspiration to better understand the reasons behind the existing surrealities of the projects and how they can be instructive for future re-fuse, structures transformed into thrifty landscapes.

For Bo Bardi, what was culturally-luxuriant was her inversion of Burle Marx's Recife cactus garden within the *No Ibirapuera* Popular Art of Bahia State exhibition (Fig. 3.17). For her, raw material was paradoxical. Not only

Fig. 3.15 Traditional chicken coup construction with hammock-type baskets, an early rustic *brise-soleil* Bo Bardi's adapted for the Cerrado Church (*Photo* Marcelo Ferraz)

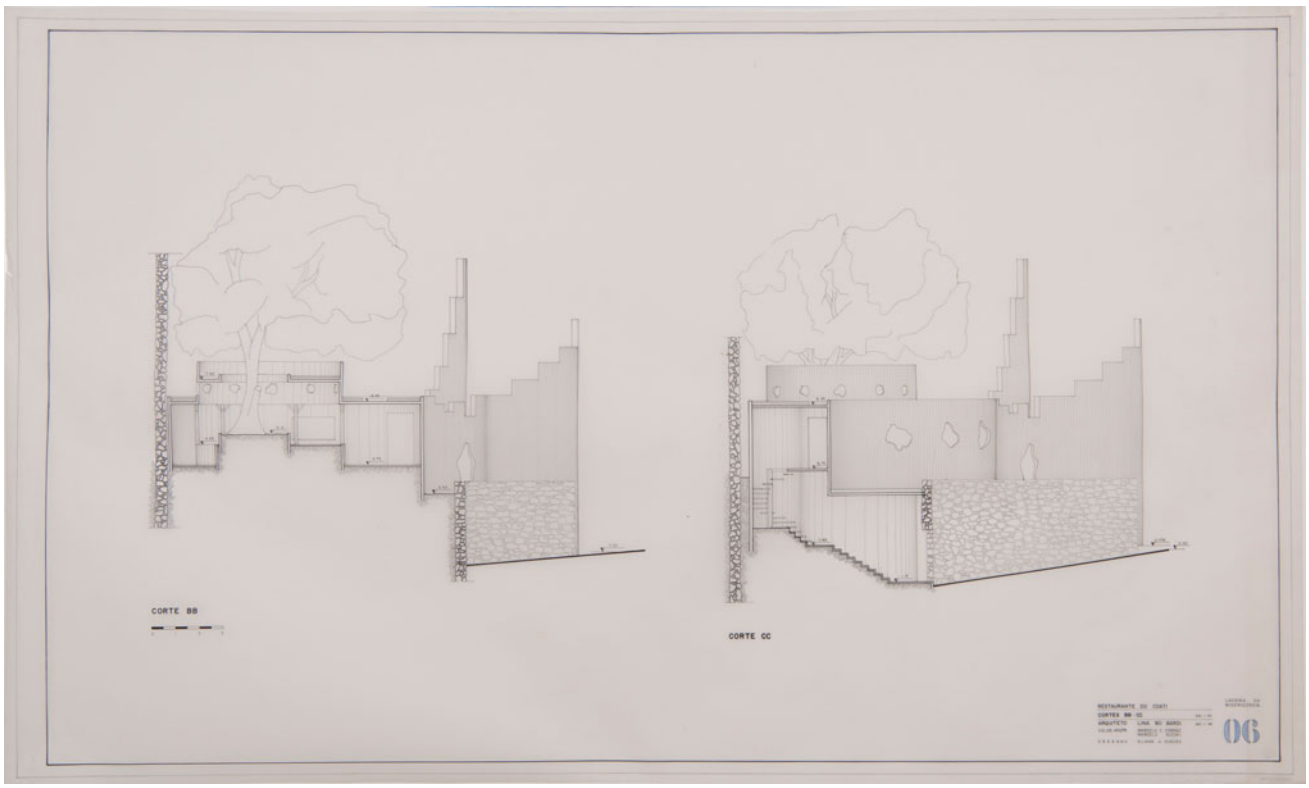

Fig. 3.16 Bo Bardi's Coaty restaurant conversion of an abandoned building at *Ladeira da Misercordia* in Salvador, Bahia. It displays both botanical and cultural luxuriance through its concrete-reed tanks (Instituto Lina Bo e PM Bardi)

Fig. 3.17 *No Ibirapuera* Popular Art of Bahia State exhibition, 1959 at São Paulo's Biennale. In the background the wall is covered with gold crumpled foil and in the foreground an elaborate paper tree. The floor is carpeted with eucalyptus leaves (*Source* Instituto Lina Bo e PM Bardi)

did it include botanical substance, but also refuse or waste. Bo Bardi herself wrote, "raw material: waste"—"*materia prima: o lixo*" (Bo Bardi quoted in *Contorno*, No. 2, dez, 2013: 56), from dumping and buildings grounds.

The *No Ibirapuera* Popular Art of Bahia State exhibition, collaborated between her and Domingo Magalhaes de Goncalves, opened in September in 1959 at São Paulo's Biennale. It introduced the themes of cultural and botanical luxuriance within its interior space. Imagined as a landscaped interior, they mounted the exhibition under the concrete canopy at the modern Biennale building's entrance designed by Niemeyer at *Parque do Ibirapuera.* As a show of survival works, the items displayed were made out of spoils from the Northeastern hinterland. Within the trapezoidal-configured space, she inserted uprooted signs, trees with flowers made out of crepe paper and foil paper off-cuts, resembling the decorated road-side chapels in Minas Gerais (Fig. 3.18). Bo Bardi "covered the wall on which the saints were displayed with crushed gilded paper" (de Oliveira 2006: 249). Her purpose was to almost "mirror the spiritual radiance of the religious sculpture displayed in front of it" (Buergel 2011).

Bo Bardi's treatment of the ceiling with stretched fabric is also reminiscent of Lilly Reich and Mies van der Rohe's 1927 exhibition "Velvet and Silk Café" in Berlin, appearing as a retractable roof, open to the sky. This is especially the case with their display device of its vertical hanging panels of gold silk (Buergel 2011). Reich and van der Rohe also made use of raw materials, such as roughly hewn timber planks, which inspired Bo Bardi. Behind the religious artefacts, the crinkled gold-effects and the raw and roughly hewn materials, featuring hammocks as "artificial" leaves, demonstrate Brazil's cultural recycling within buildings from the road-side.

At the building's ground level, the exhibition captured botanical luxuriance—with real leaves. Beneath the uprooted signs, the floor was carpeted with fresh eucalyptus leaves at the show's opening (Ferraz 2008). Bo Bardi's interiorized Burle Marx's innovative 1935 Recife Cactus garden. There, Burle Marx juxtaposed "uncommon plants,' such as "cacti surrounded by regional trees," in an urban space (Lima 2015). Eucalyptus leaves, too, were used as a sybaritic gesture of celebration and as a natural form of "bedding" to absorb sound. Bo Bardi's Bahia exhibition, held within

Fig. 3.18 Decorated road-side chapel in Minas Gerais (*Photo* Marcelo Ferraz)

Niemeyer's building, provided aromatic power of foliage. Oliveira de Oliveira has observed her use of foliage:

> In this case, they can be compared with the scented *Pitanga* leaves which Lina usually spread on the floor to celebrate the inauguration of her works (was quite a common practice in popular and religious festivals in the Northeast in order to fumigate and purify environments and people). On these occasions, as visitors stepped on the leaves their perfume was released into the air and the scent became stronger, filling the entire space. The aroma suggested to people that they were increasingly enjoying the company of others. This perfume was equal to PRESENCE, equal to LIFE. (2006: 172)

Bo Bardi introduced fragrance to perfume the modern space. What is unusual is that in recycling "natural" luxury materials for the unconventional Bahia State exhibition Bo Bardi used Australian leaf species and not ones native to Latin America. Traditionally, in Australia, Aboriginals smoke green eucalyptus leaves at ceremonies to cleanse a site's bad spirits (Porter 2016), whereas in Brazil it is scattered on the floor to lift the spirits. Historically, eucalyptus trees were introduced in Brazil in the early 1900s to replenish native forests, to maintain the charcoal industry and because they are a fast-growing species (Cumo 2013). Bo Bardi used this timber since it was plentiful. They were planted along railway lines to provide trains with fuel. Burle Marx had planted a row of eucalypts at his garden entrance to his house outside Rio de Janeiro as well. What is unusual is that the botanical luxuriance of the Australian-leaf species directed her attention to observe the tree timber for its use in building construction to create a living environment.

Eucalyptus elements used in construction are a primary southern hemisphere sustainable development in Bo Bardi's projects. Subsequently, Bo Bardi would use slender and undressed eucalyptus trunks, structurally, in many of her projects, such as the exhibition facilities at *Parque Lage* scheme (1965), her Morumbi Studio (1986) and Casa do Benin's elliptical shelter (1987), with its thatched roof recalling Warchavchik's beach pavilion. Today these species in Brazil are considered as an underused renewable building material.

Apart from the natural perfumed luxuriance of eucalyptus leaves and renewable-structural tree trunks within spaces, Bo Bardi included cheap, man-made perfume for an uncanny stage-set she designed for Jose Celso Martinez Correa's direction of a Bertolt Brecht's drama *In the Jungle of Cities.* This stage-set comprised items salvaged from a building site

in 1969. Held at São Paulo's Teatro Oficina (before Bo Bardi's preservation), the play was belligerent and evoked the Brazilian supernatural outback with found objects from a rubbish tip and construction site. On stage, Bo Bardi designed the set with debris coming from an actual buildings site to convey botanical luxuriance as a recycling form of natural waste. "With rocks, improvised furniture, old cans, and cheap perfume, Bo Bardi brought together onstage the aesthetics of hunger, the aesthetics of rubbish, and the aesthetics of a red-light district" (Lima 2013: 142). Perfume alludes to the acceptance of the *cangaceiros* in the Brazilian outback in the southern city of São Paulo on stage to share a distinguishable culture with society rather than eradicating it altogether.

Instructive Recombinant Models: From Refuse to "Re-fuseful"

When considering the concept of the "re-fuseful" existing structure within the landscape, in recreating a dumping ground on stage, Bo Bardi's theatrical episode, for instance, connects with the Concrete Poetry Movement that was circulating in Brazil at the time, which she mentioned in her writings. A different type of luxuriance arose through the site. Augusto de Campos' collage-poem *Luxo–Lixo* (Luxury–Trash) created in 1965, for instance, connects with modern Brazilian architecture and planning. De Campo's poem, according to museum curator Antonio Sergio Bessa, was envisaged as a reaction to the upper middle class' capital gains, which supported Brazil's military coup in 1964. Bessa writes, "Inspired by a newspaper advertisement for luxury apartments that was published on October 7, 1965, "*Luxo*" affects a powerful critique of the rampant consumerism in bourgeois circles and their members' disregard for the common good" (2014: 3). Bessa continues:

> A collage of repeated newspaper clippings, its individual elements (*LUXO*) laid out to spell its opposite ("*LIXO*" trash) "LUXO" veers close to semiotics. While the overlapping of micro- and macrostructures in "*Luxo*" concepts current at the time, the poem's layout also hints at modernist proposals for urban planning based on grids: with each icon "*Luxo*" standing in for a luxury tower unit, the ensuing composition presents a dismal vision of the modern city. (2014: 3)

De Campos' *Luxo–Lixo* theme aligned with Bo Bardi's concrete jungle theatre set. Her stage-set provided inspiration for the rehabilitation of Teatro Oficina (de Oliveira 2003), especially its scaffold with its tropical plants. "Construction and destruction waste were akin to raw materials" (Zollinger 2012). The wasteland becomes a luxuriant site in that it literally grows over the outskirts and the cities—as inorganic waste. Bo Bardi evolved both aspects of the environment—artificially and naturally by salvaging consumerism's waste. The past exists in her work as well as whatever has been "discarded as useless: lost, broken and abandoned; in short, trash… recycling materials and opening up new possibilities for use. These narrative works heighten the senses, suggesting strategies for survival" (de Oliveira 2003: 5). Bo Bardi therefore considered the value in recycling a site's building framework, including its off-cuts, such as steel reinforcement rods to be "re-fused" into something vegetal, artificial.

Bo Bardi "made-good" industrial structures. She "'contaminated her spaces with the interferences of reality and configured them as infrastructural 'skeletons,' open to the unforeseen" (Wisnik 2014: 47). This means Bo Bardi renewed existing sites by spoliating her own preceding sketches in her future projects as plant rooms, by salvaging the architectural elements within their immediate grounds.

She salvaged landscapes by synthesising pre-Columbian references with local cultural habits such as at religious festivals, carpeting floors with eucalyptus leaves, in her São Paulo projects for aromatic purposes to enlivening demure spaces. The use of plants within buildings provided her with the middle ground as a breathable barrier, transforming unsightly Brazilian cities by salvaging sites with luxuriance. Resuscitating the incomplete ruins of the building sites and their cultural spoils involves a process of construing how luxury has changed from a botanical phenomenon to a cultural one. This process occurred in Bo Bardi's projects in the form of profuse tropical growth—as "luxuriance"—to one about managing building waste in cities.

Rather than preserving the spoil, more significantly, Bo Bardi "salvaged" the quality of luxury articulated in her repurposing of abandoned buildings. From the late 1940s onwards, ecological awareness concerning the readily availability of resources became a key concern. Bo Bardi's writings record her interest in the Amazon forest and rural experiences of Northeast Brazil's interior outback, motivating her to include different facets of luxuriance, such as foliage, within inorganic urban projects through their indigenous or imported origins to retain the nation's identity. She "had a level of interest in botany matched by few architects and, even more important, a deep knowledge of it" (de Oliveira 2006: 119). Landscape "invades and sustains all her architecture" (de Oliveira 2006: 327). With respect to the buildings, Bo Bardi had this message:

> Builders, when will you understand that we have an intense need for poetry, when will you stop feeding us the placebo of cute little facades and balustrades to make us swallow the moral insufficiency of construction based on *income* and *employment*?
> (Bo Bardi, no date, quoted in Ferraz 1996: 7)

From the outset, Bo Bardi's exposed the peculiarities of pseudo-French-Brazilian luxury through the design of semi-arid, tropical and constructed landscape. Through scent, and her own sensibility, Bo Bardi's building reuse

contributions in the landscape embrace Latin America's pre-Columbian and modern origins and reiterate the conversion of them to sustainability. Based on Bo Bardi's past experiences of the Modern Movement, she provided not only architects but also landscape architects instructive recombinant models of botanical and cultural luxuriance through her informants, mainly Wright, the Warchavchiks, Burle Marx, Rudofsky and Lota de Macedo Soares. She used eucalyptus leaves and slender tree trunks wisely, and devised the rustic *brise-soleil*. Sustainably, these simple constructional gestures are not only unique and poetic but also profoundly humane.

Arguably, the use of eucalyptus timber as a valuable renewable material has prompted the concern for a sustainable southern hemisphere. Her re-bar steel cactus-flower balustrades, reuse of scaffolding and crinkled-concrete panels, too, were luxuriant but sustainable characteristics, extending the building to the site and beyond. The buildings within their sites appear aesthetically undistinguished and yet she shifted nature back to luxuriance in the form of thrifty landscapes by evolving the crinkled-concrete panels into renewed-reed tanks. Bo Bardi's durable but luxuriant projects easily accommodate vegetation.

Throughout her late career Bo Bardi re-fused the site's existing structures into renewed forms. Poetically, Bo Bardi fought consistently to meld or re-fuse the living environment within her late raw material projects and their gritty-industrious landscapes. In her architecture, the manner in which Bo Bardi characterises the landscape through its vertical and horizontal walls and raw material surfaces are demonstrative of salvaging the site's luxuriance in the city. Incorporating plant rooms in an industrial-luxuriant manner, Bo Bardi's re-fusing of existing abandoned buildings with raw materials into new industrial landscapes for citizens eventually developed into low-maintenance/reconditioned establishments. In eliminating architectural extravagance, she thought more about the spoliation of the aesthetics of waste to make it "re-fuseful." And as re-fuseful urban models, Bo Bardi enlivened dead and abandoned spaces.

More recently, Bo Bardi's SESC Pompeia Leisure Complex is especially instructive for contemporary architects. *Brasil Arquitectura*, Francisco Fanucci and Marcelo Ferraz's exceptional rejuvenation project, the conversion of old warehouse used to store barrels and an alcohol distillery into the multi-purpose Piracicaba Central Mill Theatre (2012), is a vibrant entertainment venue (Fig. 3.19).

Fig. 3.19 *Brasil Arquitectura's* conversion of old warehouse into the multi-purpose Piracicaba Central Mill Theatre (2012), Brazil (*Photo* Marcelo Ferraz)

Similarly, OMA and Rem Koolhaas' conversion of a century-old distillery into Milan's Fondazione Prada Art Centre (2015), Italy, consists of an existing tower, with its exterior clad in gold-leaf, and a new and subdued tower complex. One other project by an Italian architect that springs to mind and recalls Bo Bardi's SESC Pompeia complex is by Francesco Venezia with his unrealized conversion of an industrial area a few hundred metres from the ancient town of Pompeii, Italy, transformed into an exhibition centre and luxury hotel (2002). Bo Bardi's projects provide new challenges for future architects, landscape architects and urban regenerators—to rethink about refuse and re-fusing luxuriance through material waste. In accepting LUXURY-as-material WASTE, abandoned buildings and inorganic sites can be emotionally rescued to be fit for re-fusing into something beneficial, by not abiding by fixed expiration dates but prolonging their existing luxuriance through architectural-vegetal models.

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Recycling and Restoration: Adding New Meaning to Historical Buildings Through Minimal Interventions

4

Renato Anelli

The strategy of recycling is central to Bo Bardi's design research methods. After graduating in architecture in Rome at Gustavo Giovannoni's school, Lina Bo Bardi was trained in scientific restoration and later, in Brazil, followed his development of critical restoration. These design principles of critical restoration were first applied to the Solar do Unhao museum. This restoration and adaptation, however, was simultaneous to her ethnographical research on utensils that were produced by poor and rural inhabitants of the Northeast region. Beyond the use of handicraft building techniques in the construction of the Solar do Unhao museum's new stair, the clever reuse of simple domestic objects as utensils for everyday life founded the principles of what Bo Bardi nominated as "the civilization of survival." What she found in these recycled objects was essentiality, which she considered comparable to the essence of Japanese culture. Such essentiality was present in Bo Bardi's SESC Pompeia factory design, converted into a leisure centre with minimum and specific interventions, aimed at converting places with its new use (happiness and joy). In accomplishing this aim, she applied all her skills in set and furniture design, looking to create pleasant scenarios for daily life.

Introduction

> In Japan, there is no shame in using that which, in the West, is waste - just look at things in detail instead looking over them lightly.
>
> (Bo Bardi, undated handwritten notes)

In the words of Lina Bo Bardi, the admiration for cultures that take advantage of "waste" brings together Japan and the Brazil's northeastern backlands. For her, both cultures were based on essentiality without the superfluousness of typical of consumer cultures. The "waste" to be reused could be items disposed of—objects and packaging, as well as old abandoned buildings. The reuse of discarded items from industrial consumption is intertwined with the interests of common practices for the production of fixtures. The recycling of objects and reuse of buildings arose through its trajectory in the years of operation in Salvador (1960–1964). Meanwhile, while that developed, the Northeast exhibition occurred and Solar do Unhão was adapted as the base of the Modern Art Museum of Bahia. The coincidence between the two items is the starting point of this chapter.

Design and Popular Culture

Amongst the photographs presented in "Amazon, the architectural people" (Bo Bardi 1950: 69), there is the documentation of a little stroller made with reused packaging. In a board box, on two wheels and pulled by a rod, the child sleeps with a pacifier in his mouth covered with a soft cloth (Fig. 4.1). The inscription on the face of the box reveals that this is packaging from cans of refined lard from the "Swift" brand. Published in the first issue of the Habitat magazine in October 1950, Bo Bardi's article is followed by the "Ex-votos from the Northeast" (Habitat 1950: 72), where photographs and comments about the ethnographic research was conducted at the Folklore Research Mission to the North and Northeast of Brazil in 1938. These items are catalogued in *Popular Brazilian Sculpture* (Saia 1944).

Under the direction of intellectual modernist Mario de Andrade, the Department of Culture of the São Paulo Municipal Government promoted the book. The mission and the book were led by Luís Saia, an architect who had studied ethnography from Dinah Levi-Strauss in 1936. Dinah remained in Brazil between 1935 and 1939, along with her husband and Claude Levi-Strauss, who had been hired by the University of São Paulo. In this period, French anthropologist developed his first expeditions and then gathered

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Fig. 4.1 Stroller, unauthored photo, Habitat 1 magazine, 1950, p. 69 (Instituto Lina Bo e PM Bardi)

material for his book, *Tristes Tropiques* (Levi-Strauss 1955). The interest of Pietro and Lina in this type of ethnographic research as way of addressing popular culture is well documented both in the *Habitat* article in 1950 and in the acquisition of the first edition of the book. A copy of this text still remains in the couple's library, preserved at the location of the Institute of Lina Bo Bardi and Pietro Maria Bardi in Sao Paulo.

In the same issue of the magazine, the publication of the chairs designed by Bo Bardi and Giancarlo Palanti includes a photo of hammocks on a vessel. In almost the entire countryside, the hammocks, made with fabric hanging from the ends, serve both as a place for sleeping-in and as easy-chairs for houses. Because they are portable when removed from the supports, the hammocks could accompany their owners, as in these passenger boats that circulated in the major rivers of the North. The analogy with the chairs was explicitly clear: "With perfect adherence to one's body shape, the undulating movement make it one of the most perfect devices for home rest. The armchairs illustrated on these two pages are derived from the hammock" (Bo Bardi and Palanti 1950: 54).

The combination of these three different examples of common objects in the same issue of the magazine suggests some kind of complementary. Three categories of common objects: traditional furniture (the hammock); an object of devotion (ex-voto); and a device made from recycled waste disposal (a baby cot), will be recurring in publications and exhibitions by Lina and Pietro.

Both the materials and techniques reveal a capacity for invention in precarious conditions, which present themselves as just as valuable as the figuration of sculptures of devotion. If traditional techniques had deep roots in popular culture,

recycling revealed the power to adapt to new demands of importance that is equal, or even superior, to the design.

Following the publication of this *Habitat* issue, Bo Bardi dedicated herself to MASP and the Institute of Contemporary Art, directing the course of industrial design in another sense that being geometric abstraction. There were years of closeness with Max Bill and the Hochschule für Gestaltung (HfG), known in Brazil as the Ulm School (*Escola de Ulm*). Among its collaborators, the presence of participants from *Grupo Ruptura* is highlighted, as the first Concrete Art Movement in Brazil, such as Leopold Haar, a Polish citizen, follower of Neo-Plasticism, and Geraldo de Barros, a Brazilian, who returned from Ulm in 1952. Up until his trip to Salvador in 1958, popular culture as a source for the renewal of design and architecture would be restricted to the pages of a magazine as a hidden interest.

Salvador's Historical Heritage and Popular Culture

Bo Bardi's approximation to Salvador began from an invitation to some conferences in April 1958. In August, she would return to the city for three months to teach the architecture course at the University of Bahia. In addition to these classes, on Sundays she wrote a culture page in the local newspaper belonging to Assis Chateaubriand's network, patron of the MASP and powerful communications manager. Therein, she criticized local conservatism, generating controversy that cost her the renewal of the contract with the university and her return to São Paulo (Pereira 2007: 256). Nevertheless, she was invited to collaborate in the exhibition, in Bahia, at Ibirapuera the following year, curated by Martins Gonçalves, principal of the Salvador Theatre School. Extensive ethnographic documentation, syncretic cult objects, tools for everyday life for work and play, were exposed to the public that attended the V International Biennial of Arts in São Paulo.

The success of the exhibition for the Bahian government led to an invitation for Lina to return to Salvador to set-up and direct the Modern Art Museum of Bahia, which was opened in January 1960. Amongst the work carried out in these "5 years between white people" (Bardi 1967), we highlight here the restoration and adaptation of the historical make-up of Unhão to serve as the new base for the Modern Art Museum of Bahia, and the ethnographic research that would result in the Northeast exhibition. Her first intervention in historical pre-existence, and her closeness to intellectuals and artists in Recife and Ceará to develop a large research project on popular culture in the Northeast countryside occurred simultaneously. It is inevitable to question whether there was any parallel in the manner she dealt with the remnants of the old colonial buildings on the shores of The Bay of All Saints (*Baia de Todos os Santos*) and the common practice of reusing packaging, cans, lamps, funnels and other remains of discarded industrial objects.

The design, restoration and adaptation of the complex of buildings known as the *Solar do Unhão* (Fig. 4.2), are considered affiliated to the principles of Italian critical restoration. (Cerávolo 2013: 135–163). The architect herself explicitly evokes this view in her justification for the decisions she took in relation to pre-existing buildings as a whole.

> The criterion for 'critical restoration' is based on absolute respect for the entire monument, or as a whole, representing 'poetically' the modern interpretation of historical continuity, seeking not to embalm the monument, but integrate it to the maximum extent in modern life.
> (Bo Bardi 1963: 197)

A comparison with the works of their Italian colleagues post-World War II, however, particularly those of Carlo Scarpa require some consideration. The great freedom of creative action in the reconstruction and adaptation of the Italian historic buildings is derived from the fact that the buildings had been severely damaged during the war. The restoration theory had to adapt to that situation. For example, the *Castelvecchio de Verona* suffered sizable damage in the last years of the war, resulting in the eastern wing being bombed and the bridge destroyed by Germans on the run. Scarpa found a building with several recent reconstructions; a false antique; a historicist style of reconstruction which disguises the new techniques employed (Huber 1997). It is a condition that may explain the freedom with which an architect designs his intervention, full of additions and deletions to establish the new conditions of enjoyment of the works exhibited.

In regard to Bo Bardi's intervention, the common area of the Unhão, in turn, was still a densely occupied place by its inclusion of many buildings from different historical periods and with varying architectural qualities. The reconstitution of the epistolary debate between the architect and the supervision of the local Superintendence of the Department of Historical and Artistic Heritage—DPHAN (Cerávolo 2013: 193–203), reveals more than a clash between the principles of romantic or scientific restoration, adopted at that time in Brazil. Recent studies have warned of the fact that the painting of the whole and the demolition of the internal vertical movement could hardly be classified as appropriate to the theories of Italian critical restoration (Perea 2013: 428). However, the contrast with Brandi's theories went further (Salvo 2014).

The decisions as to what would be demolished are severely criticized by local technicians of DPHAN, who judge them as having little relevance to the philological analysis that Lina argues had been carried out following the scientific restoration

Fig. 4.2 Unhão complex, 1962 (Instituto Lina Bo e PM Bardi)

teachings of her "Professor Giovannoni." Five points were questioned by the supervising body: the demolition of two of the five warehouses and a sidewall near the church, the addition of new windows on the facade to the sea, the reconfiguration of the geometry of the roof of one of the sheds as well as the form of the new internal dividing walls.

Such interventions never received clear justifications from the architect, and they can be considered as having arisen from the final configuration conceived for the whole. The main ones, the demolition of two warehouses built in the nineteenth century, and the preservation of the other two, were affected without the support of the philological criteria applied by DPHAN. It is a choice entirely motivated by the intention of opening a "square" plant courtyard by the sea. This is a decision which is much more coherent with the strategies of "chopping" adopted in Italy during the two decades of fascism, than for the reasons of critical restoration of assets severely damaged by war (Ciucci 1989: 19–34). The architect had to destroy the "mass roofs" made up of the sheds (which was presented as a harmonious whole in his own initial justification) and open-up the courtyard by the sea, thus defining the two courtyards proposed for the whole: one "open" to the bay waters and the other "closed" between the Church and the mansion.

In the main building, there is also a discrepancy between Lina's statement, saying that the criterion to be adopted in the restoration work would be the "preservation of the monument as it is, limiting the work to a replacement of damaged materials (…). The demolitions will be limited to those few areas, which confuse the exact 'reading' of the organism" (Bo Bardi 1963: 198).

With regard to the connections between the announced demolitions, the stairs, and whether or not they were original, could not be found. They are well preserved, but discreetly located in an inside corner of the main volume. The existing staircase was demolished to be replaced by the famous spiral staircase of the square plan, which occupies one of the modules of the central structure of the main floor.

In the Unhão project, Lina's loyalty to the critical restoration or to the scientific restoration is not clear,

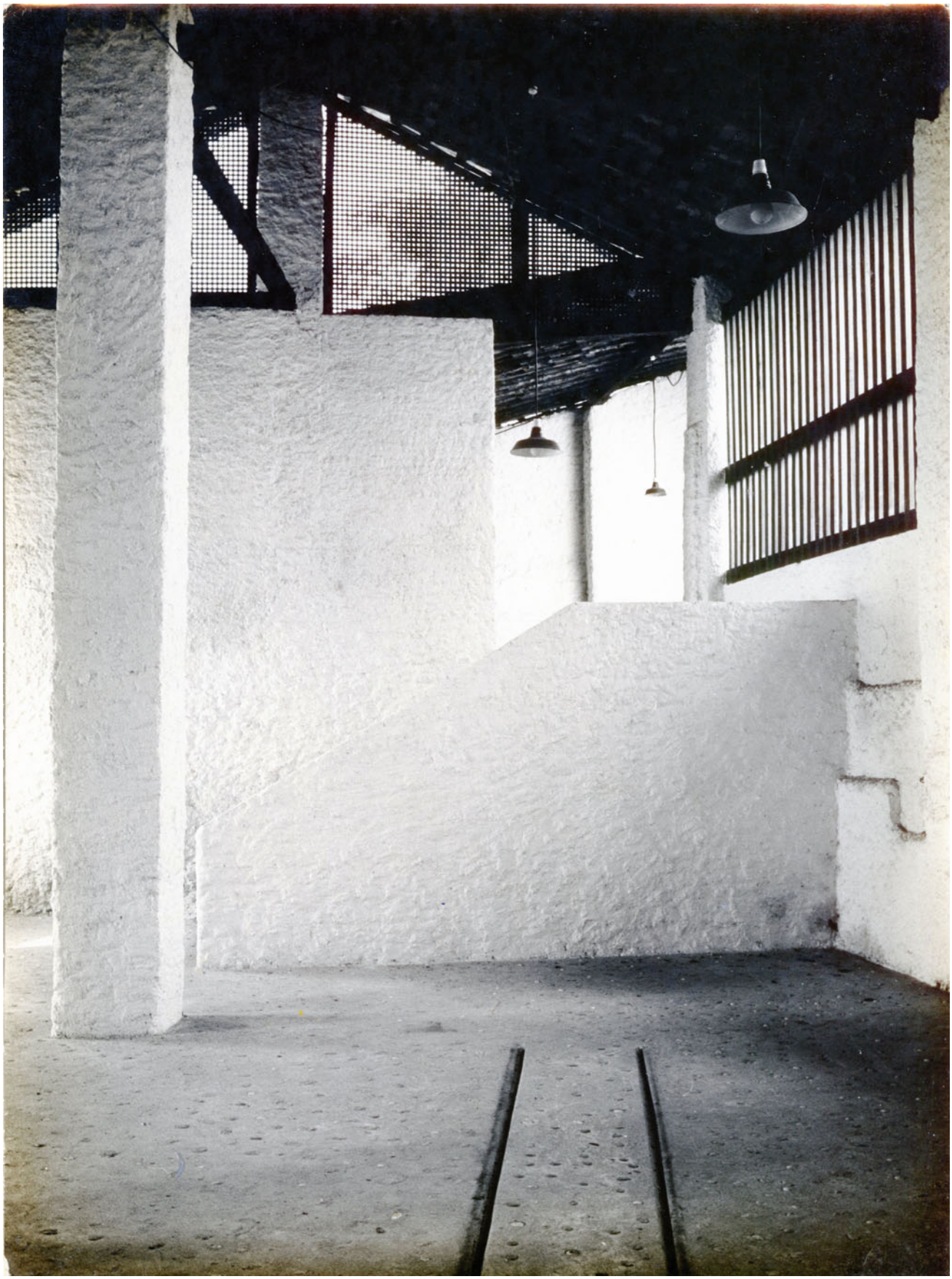


Fig. 4.3 Wooden trusses and whitewashed walls, Unhão, 1963, photo Armin Guthmann (Instituto Lina Bo e PM Bardi)

particularly the recommendation of both to explain the new interventions with a view to not confusing an unskilled visitor. The new open courtyard received a seated stone floor in the manner of the colonial period, as existed in the ancient streets of the city. Wooden trusses discreetly seal the openings of workshop and exhibition sheds, reminiscent of the interpretations of Lucio Costa, for the antique *mashrabiyas* of the colony (Fig. 4.3).

Even the spiral staircase, built from milled ipe wood, uses the atmosphere of "wedge and tenon" traditionally found in the old ox cart wheels (Fig. 4.4). Floor trusses and stairs are aggregated to the whitewashed walls of white tile panels and restored roofs, configuring the wideopen spaces of the courtyards, the exhibition halls and workshops.

New and old intertwine in a strange amalgam, given that the devices are created from recycled cans and packaging that populated the Northeast exhibition a few months after its inauguration.

The scenic character of the interventions is also relevant. Photos by Armin Guthmann taken soon after the completion of the works, with the building yet to be occupied, showed the strength of the empty open courtyard and main hall convey the presence of an old crane (Fig. 4.5), and the new staircase.

The relationship of these new objects with large and empty plans refers to the space of Giorgio De Chirico's metaphysical painting, a reference already explored in the collages in the interior of the Museum *à Beira do Oceano* (1951). The interventions are not explicit as recommended by both scientific and critical restoration. It is build up an "atmosphere of strangeness of the objects and of the void around it," as noted Edoardo Persico in relation to De Chirico's painting and its potential as a departure, pointing to further research in Italian architecture as it means the "shapes and the atmosphere of the Italian cities" (Persico 1935: 189), as observed by Corato (2013: 153).

In cities with a long history, where records of all periods remain, the voids become strategic to enable their coexistence. A recurring operation in Lina's trajectory, the construction of estrangement by emptying the space where the objects are found or designed, is perhaps the architect's procedure which is less understood in current interpretations.

Research and the Northeast Exhibition: Between Waste and Folklore

> The raw material: garbage – dead lightbulbs, scraps of fabric, motor oil cans, old boxes and newspapers. Each object touches the threshold of nothingness, of misery. And it is this, together with the continuous, insistent presence of the "useful" and the "necessary", which constitutes the value of this production, with its poetic of human things that do not come for free, that cannot be created by mere fantasy. The exhibition offers a critical overview of this modern reality, presenting an example of the direct simplification evident in forms that buzz with vital energy – forms of artisanal and industrial design. We insist that the identity of the artisanal-industrial object based on technical production must be linked to the reality of the materials, and not to some choreographed folkloric formal abstraction.
> (Bo Bardi 1963: 117)

In this quotation, Bo Bardi defines her field in the relationship between modern and popular culture. The emphasis on waste as raw material for everyday objects was her addition to the interest in traditional production of works, which until then, was already well-known (Fig. 4.6).

Since her early writings in Brazil, Lina expressed her attention to popular culture studies. Gradually she established a differentiation between the approaches of folklorists and anthropologists, distancing herself from the former and in doing so approximating herself to the latter. At the time, in Brazil, folklore scholars were intellectuals who, in the process of modernization, had dedicated themselves to choose what should be preserved from disappearing, deliberately turning them into a myth (Albuquerque 2013: 66).

Mobilized by the political project of constructing a national identity, art and modern architecture have traveled the paths of folkloric research since the 1920s. Coming from another culture, Bo Bardi accuses folklorists of attempting to freeze popular culture in a certain stage of development.

> When popular production petrifies in folklore, the true cultural roots of a country dry-up: it is a sign that domestic or importation "interests" have taken hold of the central power and the possibilities of indigenous culture are replaced by "clichés", by "supine repetition" and by final submission to void schemes.
> (Bo Bardi 1994: 21)

On the contrary, interest in folklore should not have the purpose of preserving its ways, but rather to "review the original creative possibilities. Modern materials and modern production systems take over the place of primitive means, preserving not the forms, but the deep structure of those possibilities" (Bo Bardi 1994: 21).

She removes herself as much from folklore as from "populist romanticism", the followers of "Ruskin and Morris," pointing out the impossibility of reversing the process of modernization. The possible goal would be to direct it to another path.

The construction of Brasilia between 1957 and 1960 represents the concentrated effort of internalization of economic and social development, supported by large capital investments and the use of the most advanced construction technologies available in the country. This movement was combined with specific policies for poor regions, based on other economic planning strategies. The case of Bahia is included in the Northeast development projects, which, economically, was the most important region of the colony

Fig. 4.4 New main stair, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

Fig. 4.5 Old crane on the new open square, Unhão, 1963, photo Armin Guthmann (Instituto Lina Bo e PM Bardi)

Fig. 4.6 Lamp made with a dead lightbulb, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

until the eighteenth century. It lost its primacy with the emergence of the gold cycle in Minas Gerais, and the coffee cycle in São Paulo, already in the nineteenth century.

In Bahia, a movement began for the resumption of its political importance back in the 1940s, encouraged by the discovery of oil. Economic planning institutions were created, as well as the university, which took on a leading role in the regional modernization of intellectual formation. Bo Bardi's invitation was created in this context, with a complex process of regional modernization in progress. In it, crafts and popular culture were important issues, feeding the production of the first generation of modern artists moved by the ideal of national identity.

Crafts, however, had potential to attract other industries, including economists. *Crafts and Folk Art* (Pereira 1957) was published, commissioned by the Economic Planning Commission of Bahia. Its goal was to locate the craft production centers in order to create public incentive instruments for its qualification as an economic activity capable of reducing migration from the countryside to the cities. The survey classifies the existing manual productions in several categories: manual weaving, Cowboy leather uniforms, metal artifacts made by blacksmiths, basket-weaving and braiding native palm leaves, ceramic vases and sculptures (votive and miniature), as well as the remaining shipbuildings from the Sugar Cycle, when the river system was used to transport production. It is a classification that matches the one adopted in the Bahia exhibition at Ibirapuera, held in São Paulo in 1959.

Crafts and Folk Art is crowned by an essay on the craft in Bahia, written by economist Rômulo de Almeida, director of the Economic Planning Commission of the State of Bahia. For him the knowledge of regional craft could serve as the basis for a low-tech industry, able to "develop economic activities that use little capital and a lot of manpower" (Almeida 1957: 172). As noted by the author in a previous study (Anelli 2014: 176–179), it deals with the application guidelines of the United Nations' Economic Commission for Latin America and the Caribbean (ECLAC), for the development of poor regions, which guided the actions of development policies in various countries of the continent. Rubino (09) credits the Bahian folklorist Renato Almeida for the main reaction to this project, stressing the need to prioritize the protective action of the State for the preservation of craft activities. It is a position that would count as the expression of support by President Juscelino Kubitschek in 1957, but without any concrete action before 1961, when Artene was founded, a crafts development division of the Northeast.

In 1962, by proposing the Center for Studies and Work Craft—CETA, in Solar do Unhão, together with the museum, Bo Bardi aligned with the direction formulated by economist Rômulo Almeida: artists should combine technological assistance to artistic assistance, not to impose paternalistic designs to artisans, but to help them study and select a repertoire of drawings that still possessed the validity and feasibility of generating income (Almeida 1957: 187). CETA therefore did not intend to preserve popular culture, as folklorists would expect, but rather, they intended to "review the original creative possibilities", as stated by Bo Bardi, to stimulate the local industry that took advantage of the existing know-how. An industry that would not massacre popular culture, a political project similar to the first phase of the Bauhaus, structured in applied arts workshops such as CETA. Presenting the program of the School of Industrial Design in CETA, Lina refers directly to the necessary differences from the German school of design:

> A school like Bauhaus or a metaphysical-experimental Ulm would be useless in a young country with a civilization having strongly primitive factors, which is directly connected to the soil, factors which are ultra-modern from a cultural point of view.
> (Bo Bardi 1963c: 245)

Today, we know the Northeast Exhibition through its photographic documentation and exhibits, housed in the collection of the *Instituto Lina Bo e P. M. Bardi* and *Centro Cultural Solar do Ferrão* in Salvador.

Most of the exhibition is consistent with the classification of the book by Pereira (1957), with objects produced in the traditional crafts of fabric, leather, metal, ceramics, woven straw, and wood. Some production tools were exhibited, such as a loom and several pylons.

The prominence given by the architect to "waste" in the presentation text does not match the proportion of their presence on display, as shown by the photographs. These show a modest set of devices made with reused cans and funnels: coffee mugs, teapots, dustpans, buckets, bowls, candlesticks and lamps (Figs. 4.7, 4.8, 4.9 and 4.10). Nevertheless, the amount is sufficient to mark their presence in a museum, a place of cultural appreciation of that exhibited. The devices made by reusing waste thus become equivalent to traditional objects commonly produced.

As a whole, the exhibition presents what Lina would call a civilization, the Civilization of the Northeast. Later, she would change the name to "civilization of survival", giving it the potential to create "a true counterculture based on real and scientific roots and not on unrealistic purposes" (Bo Bardi 1973: 779).

The intelligence for survival revealed by classes living in extreme poverty would be the ray of hope so that Brazil would not get in the way of European and North-American industrialization, which, Bo Bardi believes, were based on

Fig. 4.7 Coffee mugs made with a Toddy tin can, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

Figs. 4.8 and 4.9 Buckets made with tin cans, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

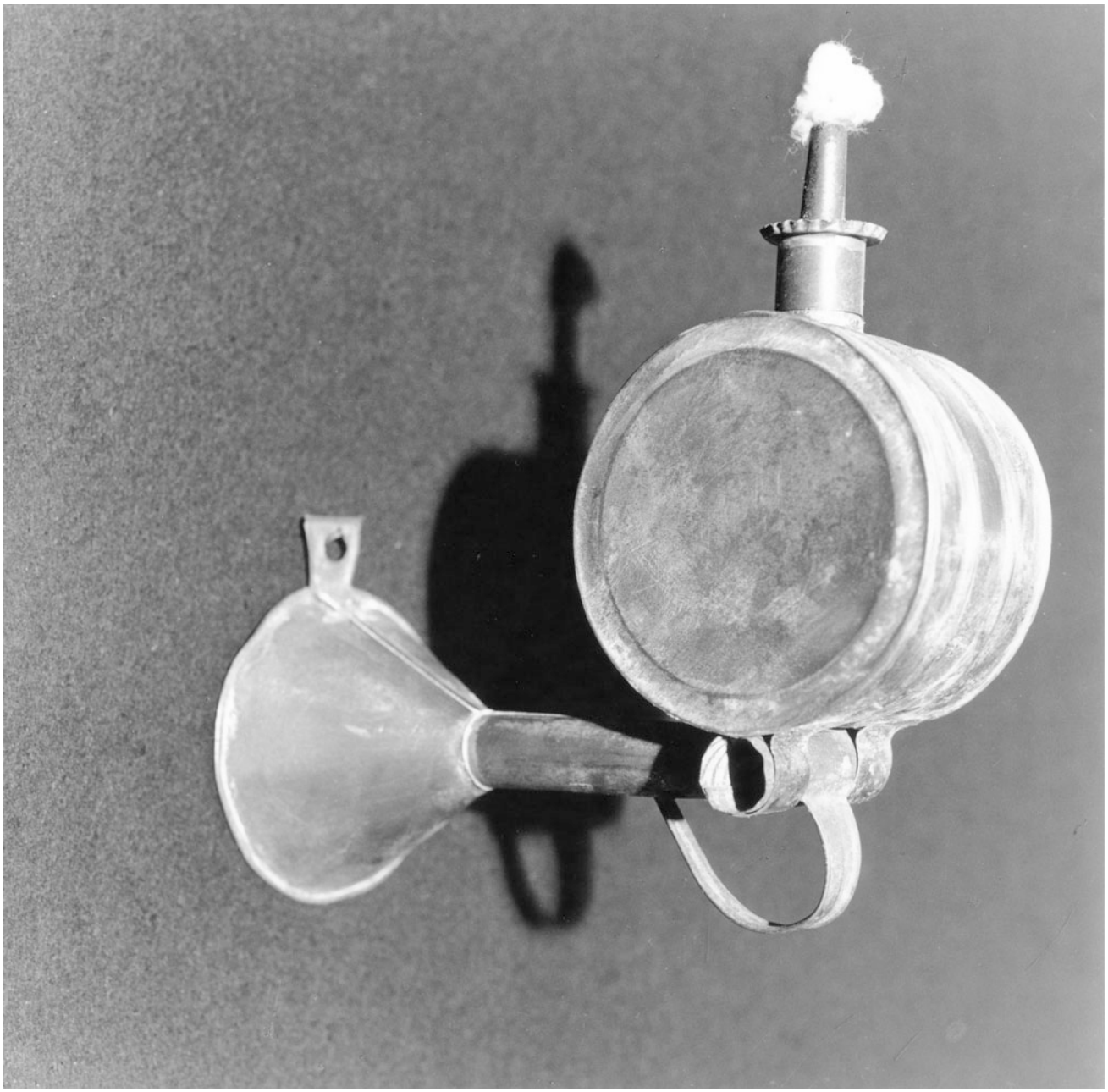


Fig. 4.10 Lamp made with reused funnel, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

superfluous consumption. In a period where various countercultures emerged in the 1960s, it was supported by a concrete social reality that is rearranged in new political configurations, even under a dictatorial regime.

The objects selected by Bo Bardi were not improvisations. In the devices that reuse the tin sheets, almost serial repetitions and cutting skills, bending and welding, can be found. Maintaining one side printed with the brand and visual identity of the original objects creates a tension with the new forms of use, because it does not hide the treatment of the disposed item reused. Even when reduced into fragments, brands are recognizable on the finished object. The candlesticks and lamps using soldered funnels follow the opposite path, where the strong identity of the metal cones are diluted in the final composition (Fig. 4.11).

The presence of waste exists with the consumption of industrialized production contrasts with the "purity" of the other objects made with traditional techniques, such as

Fig. 4.11 Display showing reused waste at Nordeste exhibition, Unhão, 1963 (Instituto Lina Bo e PM Bardi)

ceramics, straw and textiles. It reveals a detachment from the idealized integrity of popular culture, prevailing among folklorists and left-wing cultural movements. Brazil was in a rare position at that moment, a position that would explode shortly after the Tropicalist Art Movement, in the second half of the 1960s. Among the leading exponents of this movement, were the Bahian Gilberto Gil and Caetano Veloso, regular visitors to the Modern Art Museum of Bahia during the direction of Lina.

The Politic of Arts: The Creative Process and Intellectual Leadership

Several studies point to Bo Bardi's relationship with leftist movements in those years, without that meaning a partisan militancy (Ferraz 1993; Perea 2013, etc.). Rubino (2008: 02) indicates that she was guided by Antonio Gramsci to define her role as an intellectual in the contest for cultural hegemony essential to the political struggle, referring certainly to the reading of the first editions of the Prison Notebooks published in Italy between 1948 and 1951. In addition to Gramsci, as noted in another study (Anelli 2001: 69), Tafuri credits Sartre for the alignment of Italian intellectuals with "the classes unexpectedly coming to the fore, rich of a 'loser' past, but impregnated of values; since it would allow them to emerge, to profile themselves as bearers of 'purity'" (Tafuri 1986: 15).

With Gramsci and Sartre, Bo Bardi establishes herself as a left-wing intellectual, based on the deepening of this position over the years spent in Salvador. Although non-partisan, and having a general purpose, around 1961/62 her left-wing position caused her departure from her original field of support, the state government and the group of Assis Chateaubriand, engaged in preparation of the military coup that occurred in 1964 (Anelli 2014: 169–180). However, her original bond with those right-wing segments did not allow her to be fully accepted by either the federal labor government of João Goulart, nor by leftist organizations operating in the region.

Bo Bardi found support in two young artists and intellectuals active in northeastern states: Livio Xavier, director of the University of Ceará Art Museum at the time, and sculptor Francisco Brennand who served as Head of the Pernambuco state government's Civil House between 1963 and 1964. With them, Lina established the collaboration that reached the regional scope of the Northeast exhibition to the three main states in the region. Through Brennand, Bo Bardi came to know the Popular Culture Movement (PCM) in Recife, which was created by intellectuals, artists and politicians of the Catholic left, social democrats and communists, for the purpose of mass education, mainly of illiterate adults. During the governments of the socialist Miguel Arraes in Recife (1960–1962) and the state of Pernambuco (1963–1964), MCP was established as an autonomous department of the municipal government that mediated the action of these intellectuals and artists with the mass of working and illiterate poor, both in rural areas and urban areas.

For this study, we highlight the role of the educator Paulo Freire, not only for his intrinsic importance, but also for the interest he aroused in Bo Bardi. Freire rejected the classification of the illiterate as uncultured and developed a literacy method based on knowledge of the cultural reality of the communities where the educators operated, from which learning was built. The educator chose words with students from their everyday experience, called generative words, using them to introduce them to syllables, reading and writing. The literacy process became an opportunity for political debate guided by the actual experience of the participants.

Later, in 1968 already during his exile in Chile, he would organize his ideas in the book *Pedagogy of the Oppressed* (Freire 1970) directly referred to in an article by Bo Bardi in 1973, when she describes their positions in common:

> Absolutely uncultured men do not exist, the language of a people is not their mispronunciation but the way that thought is constructed. View can be used to critically awaken a natural awareness, and acquire consciousness to politicize, decode the visual language and reduce it to existential situations, even if that method is that of the illiterate.
> (Bo Bardi 1973: 778)

In reviewing the experience in Salvador after 10 years Bo Bardi complements what was still smoldering. In 1963, the recognition of the popular production through a dip in reality meant a strategy for the review of modern design, renewing it through contact with "direct simplification evident in forms que buzz with vital energy". The new design would allow the regional development of the Northeast, activating the economy and creating jobs with low capital investment. It was part of a popular national project in the country, which was still foreseeable before the 1964 coup. By 1973, this project had been defeated and banished from the coup, and there was no further possibility of a simple resumption. In addition, the design was no longer so important to Lina, who would occupy herself reflecting on the political role of the intellectual and the artist in society. "The effort to get out of a culture that puts the ideas of a subject onto another in order to create works of collective creation, not an instrument of domination" (Bardi 1973: 778). The paternalistic practice, even if left-wing, and

Eurocentric, should be abandoned to enable the "collective creation." And this would require a new attitude from the architect, as advocated in her interview in 1972:

> New architecture should be linked to the problem of man as creator of his own spaces, of pure content, content that creates its own forms. This type of architecture requires absolute humility of the architect figure, an omission of the architect as the creator of life forms, as an artist.
> (in Lima 1972: 37)

Such demonstrations were made by the architect in the years spent in São Paulo removed from the public scene, working at MASP and on some theater set designs. The Bahian experience was passed without restricting to the pain of defeat. On the contrary, keeping up to date in the arts debate with her husband, Pietro, and dialoguing with the young directors and set designers such as José Celso Martinez Correa and Flávio Império, Bo Bardi channeled her political unrest toward two issues central to the period: a review of the role of the subject in art and the intellectual role in social transformations. Through these reflections, she is renewed, showing willingness to experiment practical developments in architectural design.

The Significance of Experience in Salvador in the 1980s

The democratization process in Brazil was prolonged, stretching from the mid-1970s to 1985, when the first civilian president took office. Over the years, the critical review of the period before the 1964 coup was intense. Reconsideration was sought from the new political values that emerged from the movements that led to the end of the dictatorship. The relationship with popular culture established in those years was a major center of attention. The very role of intellectuals in society in the period was revised to assess how paternalised it was, a process that was implemented, inclusively, by those who worked in the period (Holland 1980).

In this historical context, Bo Bardi worked on the organization of a book to consolidate her experience in the Northeast, with photographic documentation of and texts by her and several artists, intellectuals, and politicians involved. The importance of her experience in the Northeast to the architect can be measured by the various occasions in which she wrote critical reports about it.

In 1981, she decided to interrupt her work by justifying in a summed-up manner that it is: "No use, all this will fall into the void" (cf. Suzuki 1994: 9). The book was published posthumously in 1994 by her collaborator Marcelo Suzuki, and started with the repetition of a phrase previously published, which supported her fatalism: "Brazil had reached a 'Bivio'. It has chosen finesse" (Bo Bardi 1977). A sketch published in another article a few years before illustrated which fork she meant: a path of "techno-primitive searching of a unique culture/Africa-Middle East" or "finesse—consumer gadgets—Europe-United States" (Bo Bardi 1977).

The summarized opposition to the scheme refers to a Latin American rating, a non-Western position, a derivative of the known association made by Max Weber between the Protestant values of rationality and impartiality with the spread of capitalism in Western countries. In the decade of 1930, many had used Weber's concepts to define Latin America as different from the capitalist West for being unable to reach its rationality and impersonality (Parsons 1965). The intended inferiority of that position would be reversed by the Brazilian sociologist Freyre (1933), making a virtue out of characteristics of Brazilian society that were previously negative, such as mixed races and personalism of relationships, making them the center of the founding myth of Brazilian national identity (Souza 2015: 25). Bo Bardi shares the hope that this reversal produced by Freyre was able to offer an alternative perspective to a West that was dominated by a mass consumer culture. To that end, she interprets Freyre's construction in her own way. In one passage highlighted by her (or by Pietro) in the copy of the existing book in her library, Freyre explains Brazil's connection with Africa and Asia by way of Portuguese colonization, which established the transit of technical and cultural habits among its colonies and commercial warehouses. The Brazil, as from its origin, would never be part of the West.

Although it emerged in several reviews since the first issue of Habitat magazine in 1950, criticism of the misuse of modern design through preoccupation with the production of disposable consumer goods, and superfluous gadgets, was only consolidated in the article "Environmental Planning: design in the impasse" (Bo Bardi 1976). In it, the architect points to technocracy and consumerism as a demonstration of the inability of the modern movement to achieve its goals of social emancipation. It is notable that the term urban planning or regional planning was replaced by environmental planning, which was loosely defined in the text: "'Not planning' is romantic suicide, the reaction of technocratic failure; it is urgent to oppose the great task of environmental planning, from urbanism and architecture to industrial design and other cultural events" (Bo Bardi 1976: 139).

It is not yet clear how much she was aware of the environmental agenda that emerged on the international scene,

which spread with greater intensity from the United Nations Conference on the Human Environment held in Stockholm in 1972. It is certain that Brazil, even under dictatorship, was a signatory to treaties at this conference, with developments to Brazilian legislation and the practice of planning and landscaping (Chacel 2001: 20).

The article directly refers to the participation in 1975 at the XII World Congress of the International Union of Architects held in Madrid, to confirm her view that the "position of the architect in the face of the collective" had been overcome, and that it had lost the sense that the modern movement had given it. Disorientation in architecture produced in developed countries reigned. Brazil, which could have offered an alternative, accepted a position of subordinate, forgoing the creation of an authentic modern culture from popular culture (Bardi 1976).

The Project as an Experiment to Break the Deadlock

Yet it was also after these years that Bo Bardi managed to succeed in some project orders that allowed her to experience the practical deployment of her political and artistic ideas. In the small church of *Espírito Santo do Cerrado em Uberlândia* (1976–1983), Bo Bardi applied her idea of "absolute humility of the architect figure" to interact with suburbs residents organized in an Ecclesial Community Base of the Catholic Church. The submission of project decisions to meetings with residents and mutual-aid auto construction, combined with the support of a specialized construction company, characterized Bo Bardi's first work after so many years of separation (Lazzarin 2015). With this synthetic small scale work, Lina experienced architecture that, despite being made with few resources for a suburb population, did not fail to use knowledge of the complex rules of composition learned from classic treaties to insert a square structure and a six-water roof, and both in a cylindrical room. There, the community participation did not oppose the learned knowledge of the architect, the creative subject of the work.

With much greater repercussions, although developed almost simultaneously for the Church of Uberlândia, the conversion of industrial sheds in a social center for recreation and sport in the São Paulo neighborhood of Pompéia offered a wider range of challenges for the architect. She influenced the revision of the demolition decision by all; insisted that intervention of the project would be defined in an office set up on site, with the work in progress; faced the institutional complexity of the client and construction companies involved in a large project. The SESC's work consisted of an experimental field work which lasted from 1977 until 1986, when the last buildings of the development were inaugurated. This is exactly the case chosen by Andres Lepik to add Bo Bardi as an example of compatibility with his work with current conceptions of 'Reduce, Reuse, Recycle" (Lepik 2014: 19).

At SESC Pompéia, Bo Bardi started with the experiment conducted in Unhão despite the development not being listed as heritage. For her the development of industrial sheds should be preserved on account of the type of reinforced concrete structure used, a unique application of François Hennebique's patent in Brazil. To value the structure, the rest of the building components become capable of being changed according to the architect's decisions.

The degree of freedom afforded by this decision again tightens the concept of critical restoration. The entire intervention was guided by the effort to re-semanticize the sheds, which should no longer be related with the discipline of factory work, so as to fulfill their leisure center function. It was necessary for the factory to look like a playful and cozy place for its users (Fig. 4.12). To this end, its experience in set design was more important than its heritage restoration.

The project had two strategies: a step in the spatiality of the set, taking advantage of the flexibility of the structure, and the irrelevance of the seals. It offers new internal divisions, horizontal and vertical, with care not to fragment the large spaces, remove the coatings to make masonry bricks apparent, by partially replacing the cover by glass tiles. In that way the structure has large internal spaces, with plans, textures, colors and light, to serve as a stage of life that there would unfold.

On another front, the interventions are specific. They reference back to the staircase and the Unhão crane to create characters with identity that populate these broad areas: the meandering water mirror turns into "Rio São Francisco" (Fig. 4.13), totems and visual communication displays are treated as figurative sculptures, colorful handmade rugs from Uberlândia loom correcting the acoustics of the bar, the giant fireplace warms the night's rest, the waterfall of Xangô, etc. The two concrete "giants embraced" forming the sporting set, would carry the strategy at its peak.

In summary, the architect's position of humility, seeks to interact with pre-existence and the labor workers, since the future users of the complex did not constitute another real subject, as happened in the case of Uberlândia. Such interactive conditions presume an anticipation by the architect of the

Fig. 4.12 Main lounge with fireplace, SESC Pompéia, 1983 (Instituto Lina Bo e PM Bardi)

user relationship with the work. The simulation of scenic watercolors was an instrument for this. But to create collectively identifiable figures by an, as-yet, anonymous group, Bo Bardi used her personal experience with popular culture, filtered through her memory (Anelli 2001: 78). An approach that is very similar to that of her compatriots in the years of reconstruction. According to the interpretation of Tafuri's expography of the BPR group in the Castle Museum in Milan:

> The communicative eagerness becomes protagonist: its subject is the relationship between private memory and collective memory; rather, the problem of how to speak a private memory - that of an intellectual - considered "by choice", depository duties with respect to the collective memory.
> (Tafuri 1986: 67–68)

Therefore the architect's role remains as the subject creator of forms, although the process of this creation seeks to

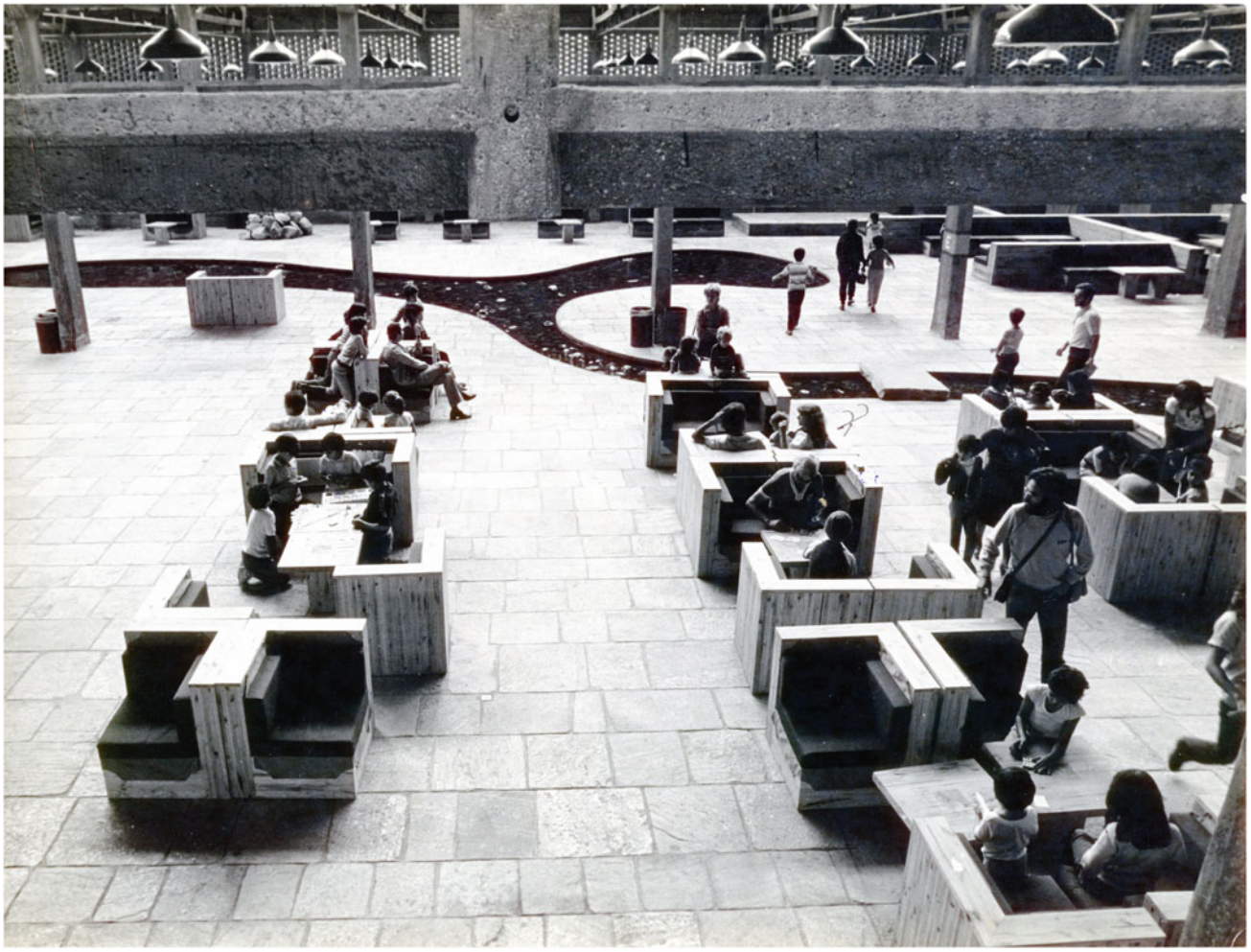
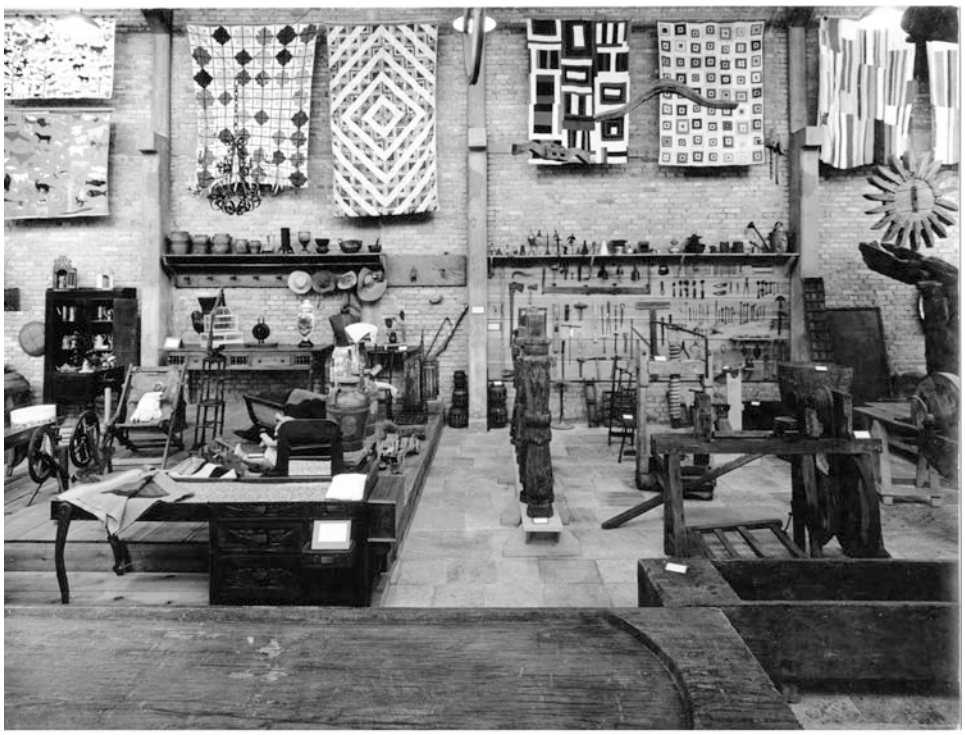


Fig. 4.13 Main lounge and "Rio São Francisco" pool, SESC Pompéia, 1983 (Instituto Lina Bo e PM Bardi)

remove it from a paternal position in society. The SESC Pompéia enjoys great recognition by its users, even if the same occurs with other places of the institution. This was perhaps due to the use of the program, in which Lina contributed to the transformation of its base, in Pompéia. However, in a city where bridges are transformed into successful areas of public entertainment on weekends, it is difficult to identify the specific architectural contribution to the recognition of a work by society.

Reaffirming the relationship between the two types of "waste," the design exhibition in Brazil: history and reality established at SESC Pompéia in 1982, she developed an interest in the use of waste common objects and utensils (Figs. 4.14 and 4.15). Much wider than the Northeast exhibitions and the hand of the Brazilian people, the Design in Brazil incorporated the contribution of the Industrial Design Center of the Federation of São Paulo State Industries. In addition to comparisons with other production of traditionally popular objects, devices made from waste thereon had new neighbors, now produced by designers, many of them trained in Brazil as from the 1950s and active in the industry: computers, automobiles, bicycles, household appliances, plastic packaging, products that filled an industrial park in the making. In fact, as the architect had intuitively chosen the path at the forked path, the return would be impossible.



Figs. 4.14 and 4.15 Design in Brazil exhibition, SESC Pompéia, 1983 (Instituto Lina Bo e PM Bardi)

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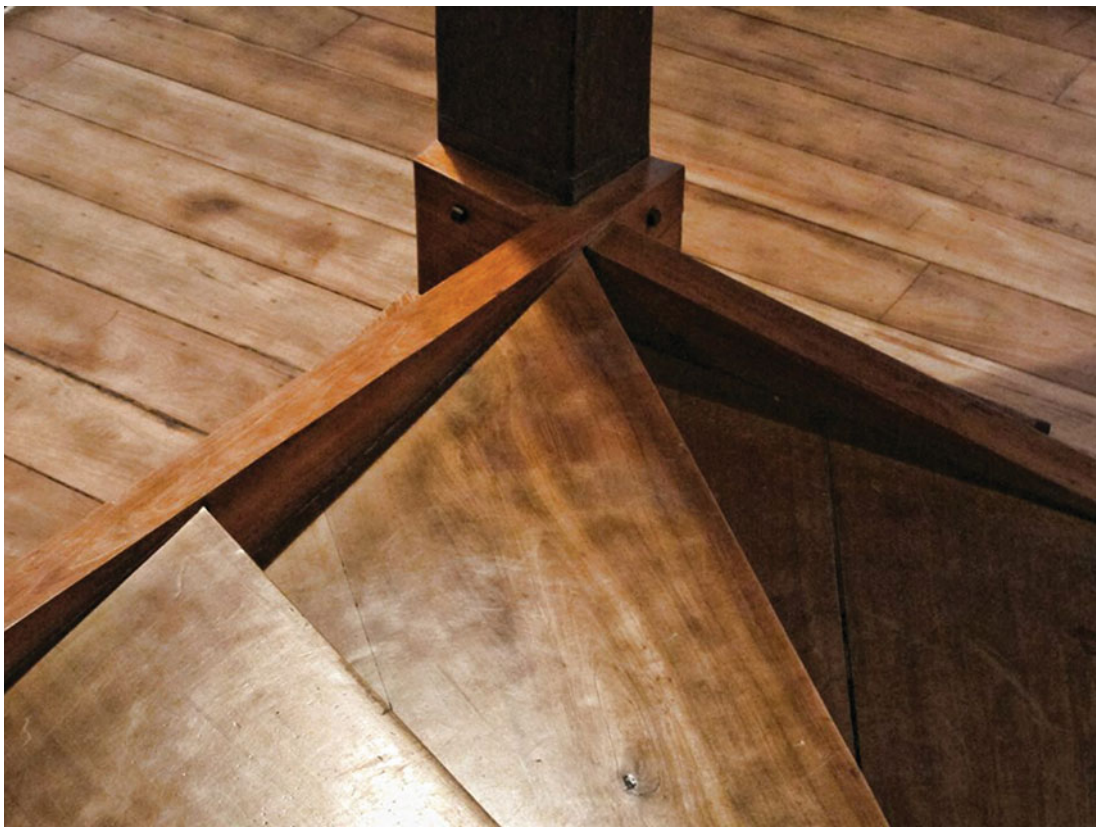
Solar do Unhão complex timber staircase, Salvador (Instituto Lina Bo e PM Bardi)

Detail of the *Solar do Unhão* staircase (*Photo* Federico Calabrese)

Solar do Unhão complex staircase

Solar do Unhão complex staircase

Detail of the *Solar do Unhão* staircase (*Photo* Renato Anelli)



Detail of the *Solar do Unhão* staircase (*Photo* Anelli)

MAM interior: the large timber spiral staircase *Escada de Madeira* in the *Solar do Unhão*, Salvador (*Photo* Anelli)

Simple staircase within the adaptive reused space (*Photo* Renato Anelli)

The *Solar do Unhão* today, Salvador (*Photo* Anelli)

Projeto Barroquinha, Salvador de Bahia: the historic Pelourinho district, the old Baroque centre of Salvador, an urban renewal project, 1986-90 (Instituto Lina Bo e PM Bardi)

Lina Bo Bardi's Plan of Bahia district, Salvador (Instituto Lina Bo e PM Bardi)

Casa do Benin, Afro-Brazilian cultural centre in Salvador, 1987 (*Photo* Federico Calabrese)

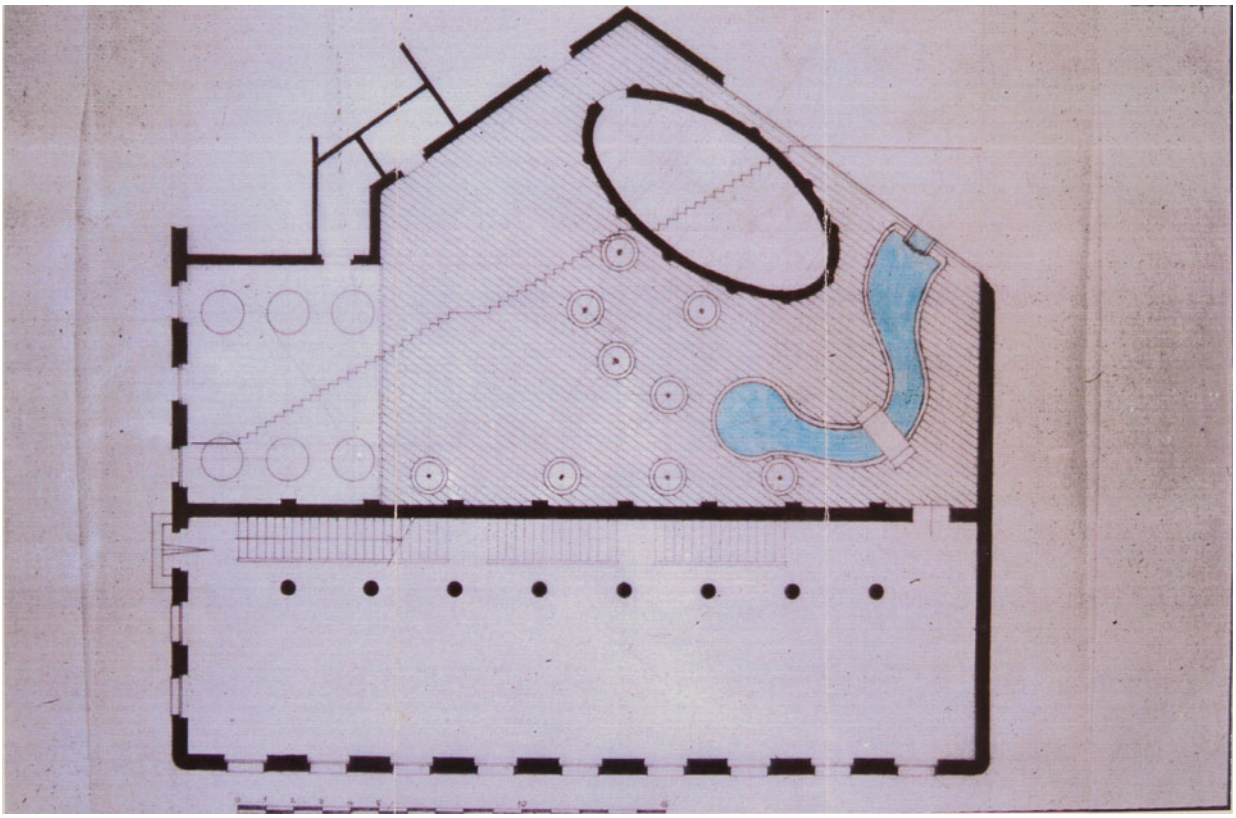
Casa do Olodum interior, Afro-Brazilian cultural centre in Salvador (*Photo* Calabrese)

Casa do Olodum's ceiling structure, Afro-Brazilian cultural centre (*Photo* Calabrese)

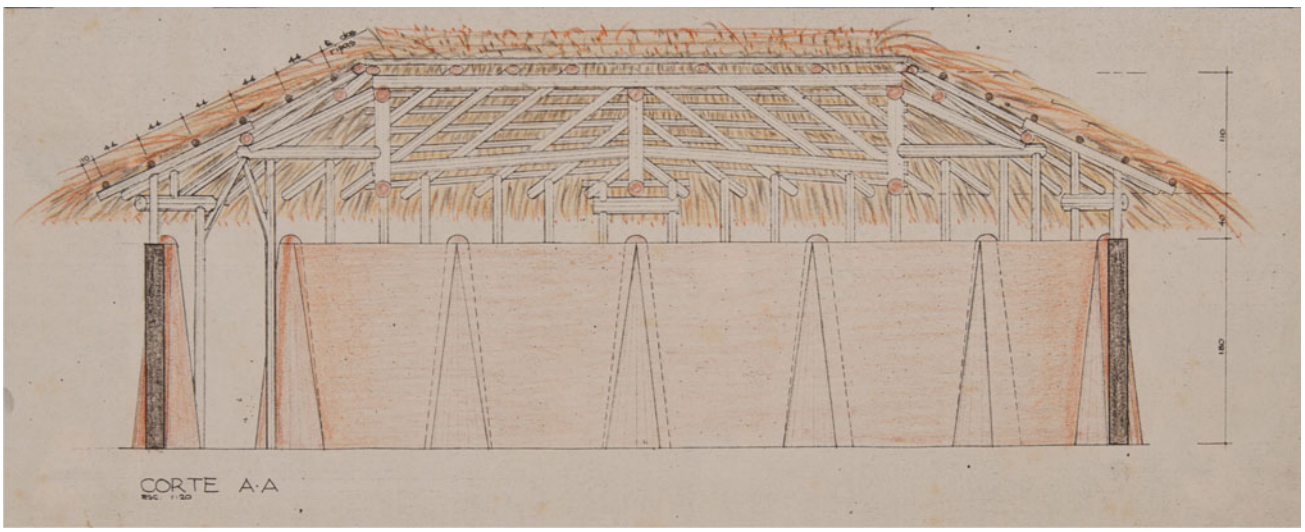
Casa do Benin interior (*Photo* Calabrese)

Crinkled-concrete panel, Salvador (*Photo* Calabrese)

Casa do Benin, landscaped courtyard, Salvador (*Photo* Calabrese)



Lina Bo Bardi's Plan of the *Casa do Benin* (Instituto Lina Bo e PM Bardi)



Lina Bo Bardi's Elevation of the *Casa do Benin* (Instituto Lina Bo e PM Bardi)

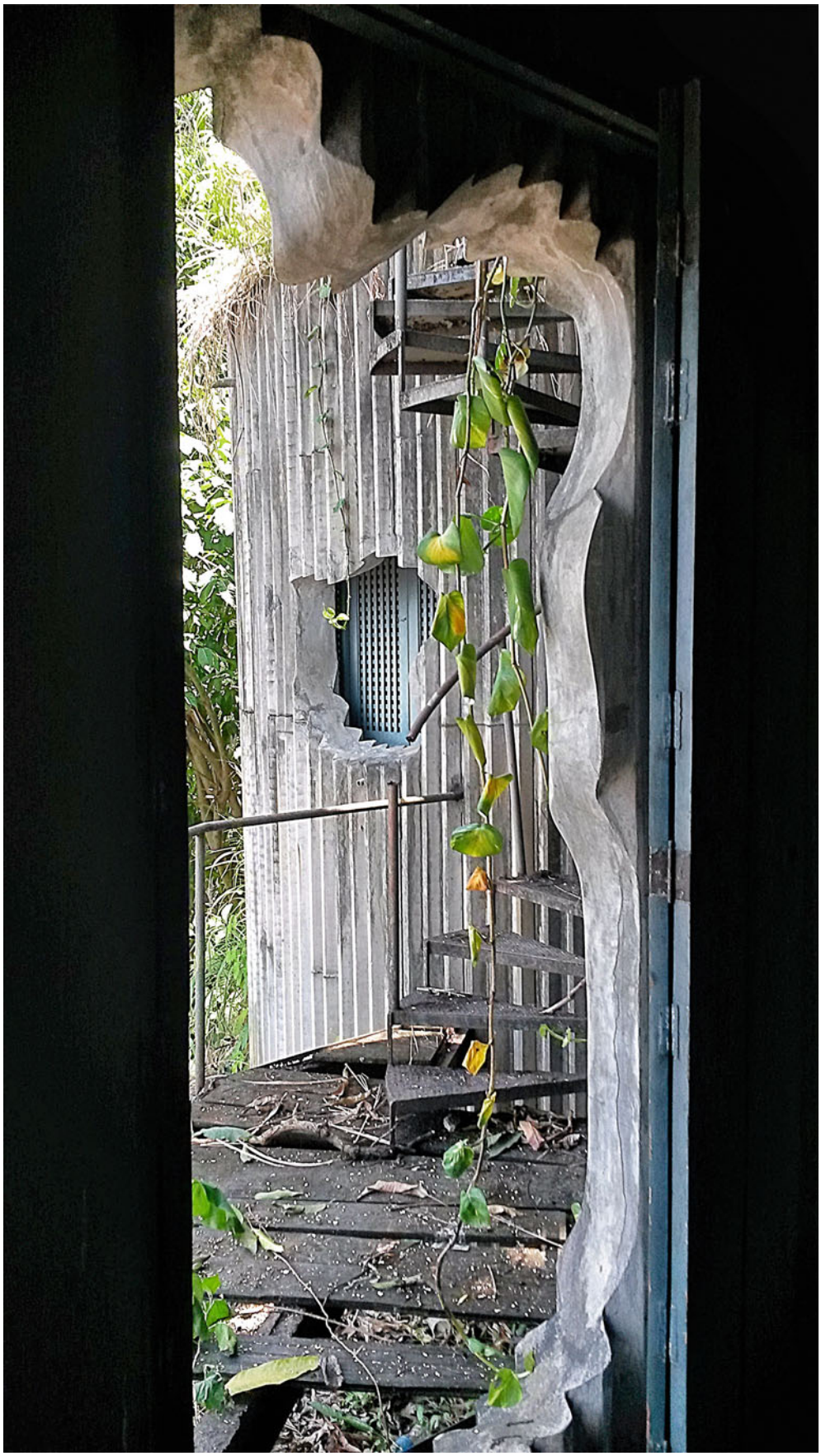
Exterior view of the Casa do Benin (*Photo* Calabrese)

Lina Bo Bardi's Plan of *Ladeira da Misericórdia* (Instituto Lina Bo e PM Bardi)

Ladeira da Misericórdia with the *Restaurante do Coaty,* Salvador, Bahia; in collaboration with architect-engineer João Lele Filgueiras Lima, 1987-88 (*Photo* Calabrese)

Old and new façade of the *Ladeira da Misericórdia* with the *Restaurante do Coaty* (*Photo* Calabrese)

Detail of the crinkled concrete panel and the existing fragments, *Ladeira da Misericórdia* with the *Restaurante do Coaty* (*Photo* Calabrese)



View of the *Coaty Restaurant, Ladeira da Misericórdia* Salvador (*Photo* Calabrese)

View through the rusticated window of the *Restaurante do Coaty* (*Photo* Calabrese)

Organic interior of the *Restaurante do Coaty* (*Photo* Calabrese)

SESC Pompéia Leisure Centre in São Paulo, 1977-78 and 1982-86 (*Photo* Steffen Lehmann)

View of the SESC Pompéia Leisure Centre from the concrete walkway (*Photo* Lehmann)

View of the SESC Pompéia Leisure Centre
from the concrete walkway (*Photo* Lehmann)

SESC Pompéia Leisure Centre “urban beach” in 1977

Lina Bo Bardi's Landscape plan of SESC Pompeia (Instituto Lina Bo e PM Bardi)

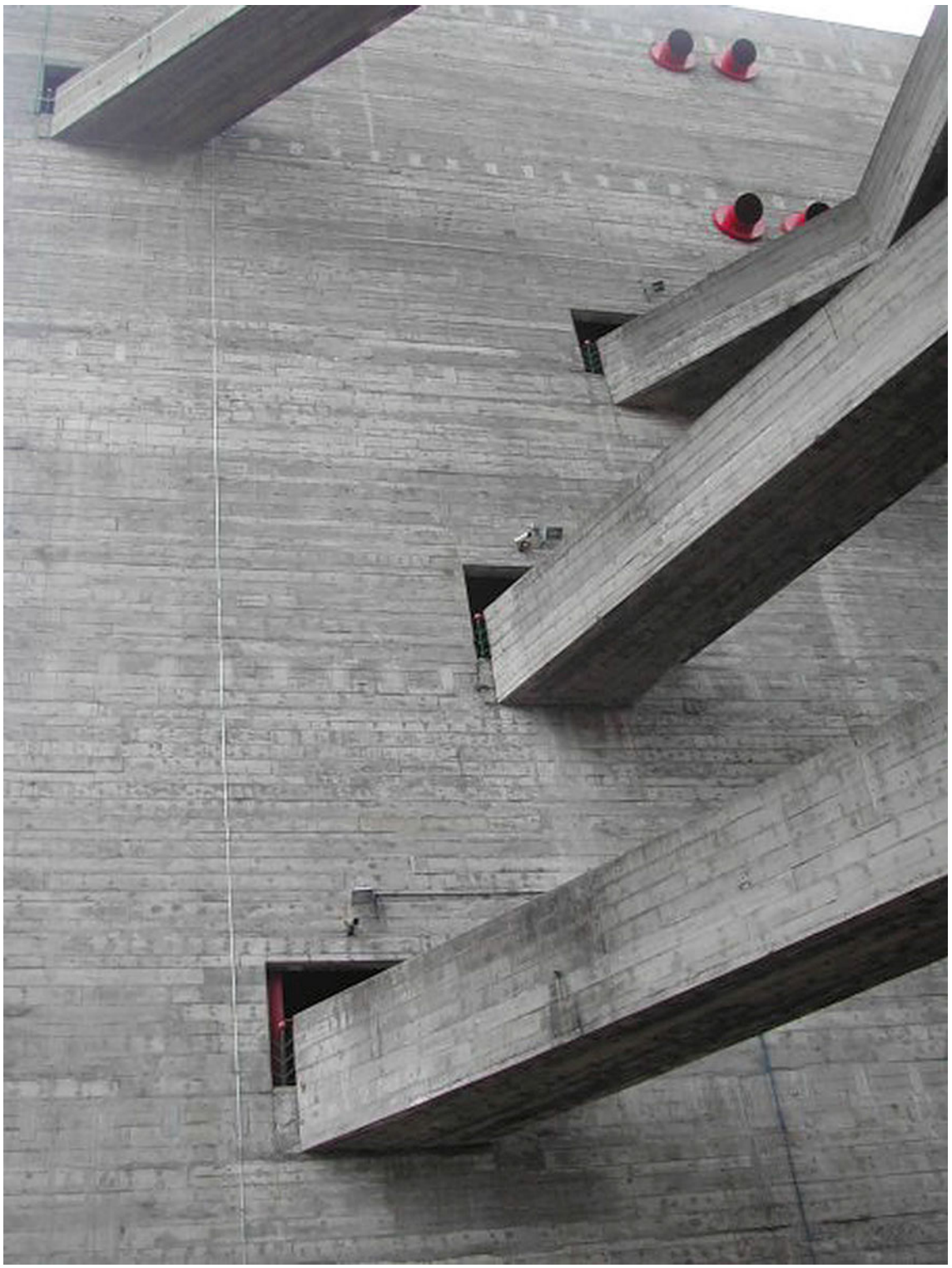
SESC Pompéia Leisure Centre's towers and
concrete walkways (*Photo* Lehmann)

View of the new tower and walkways (*Photo* Lehmann)

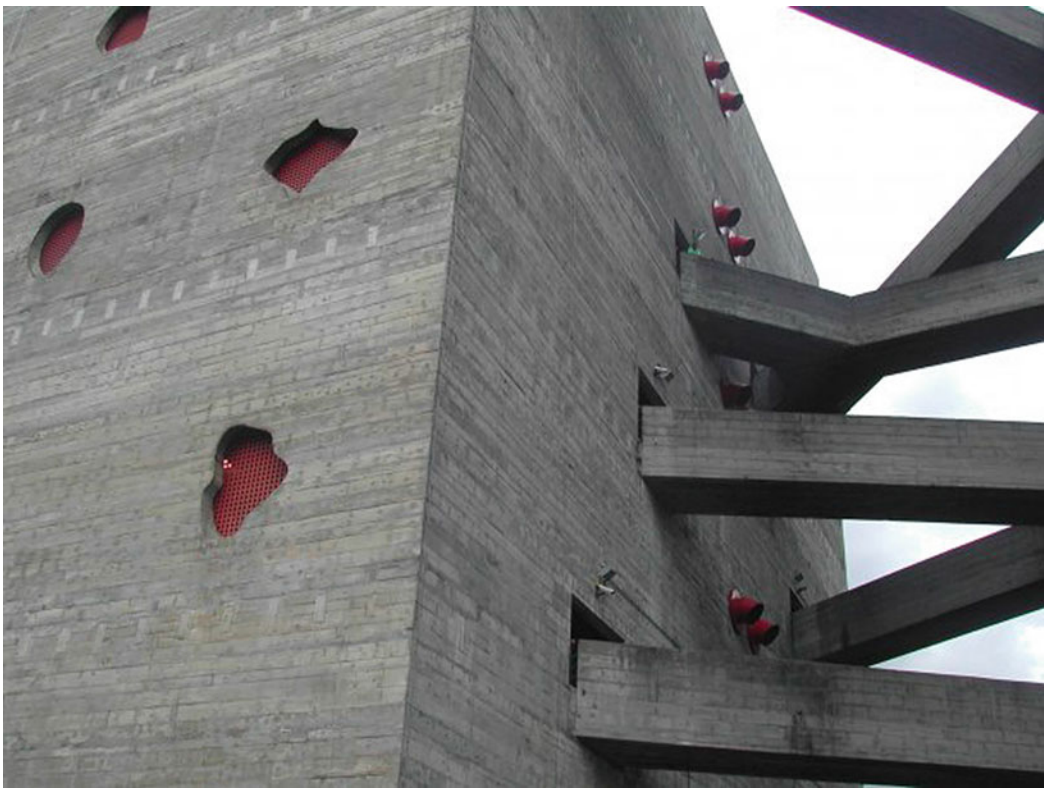
View of concrete walkways and “cactus” balustrades (*Photo* Lehmann)

View of the new tower and walkways (*Photo* Lehmann)

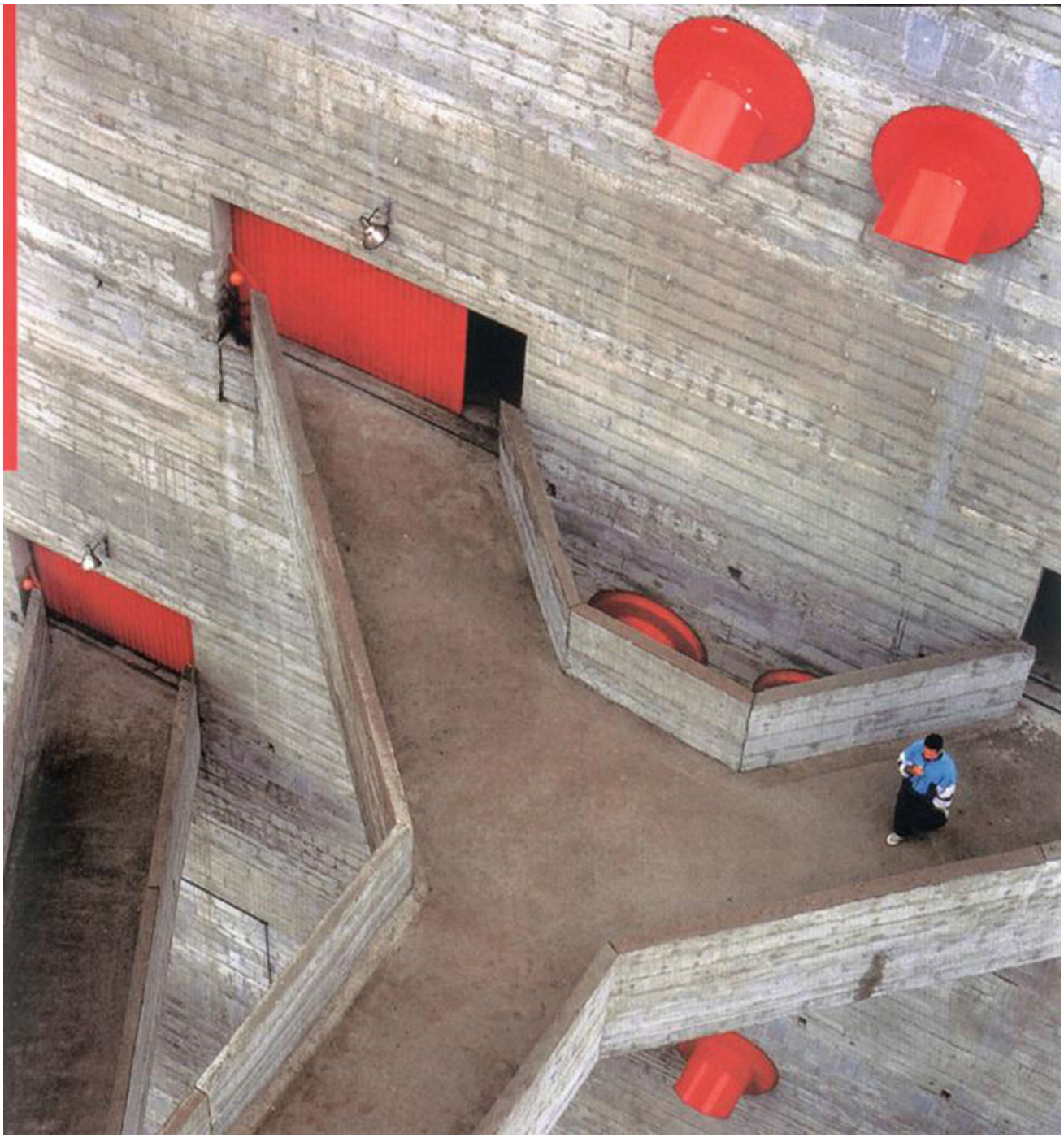
Concrete walkway (*Photo* Lehmann)



View of concrete walkways and “cactus” balustrades (*Photo* Lehmann)



Rusticated openings in the new concrete tower and walkways (*Photo* Lehmann)



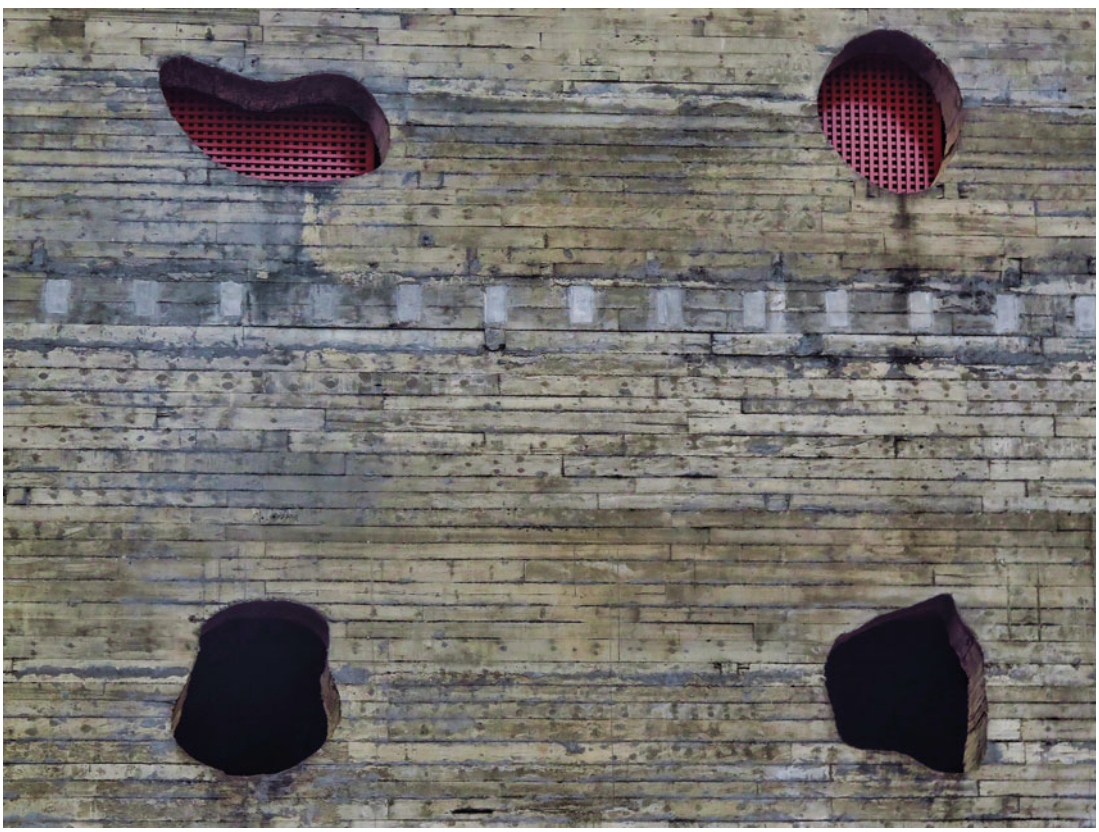
Close-up view of the concrete walkways and “cactus” balustrades

Cabling detail, SESC Pompeia (*Photo* Calabrese)

Reading space in the SESC Pompeia Complex (*Photo* Calabrese)

SESC Pompeia Complex Theatre entrance (*Photo* Calabrese)

Main entrance to the SESC Pompeia Complex (*Photo* Calabrese)



Detail of the rusticated openings in the SESC Pompeia Complex's new tower (*Photo* Calabrese)

Chess Board at the SESC Pompeia Complex (*Photo* Calabrese)

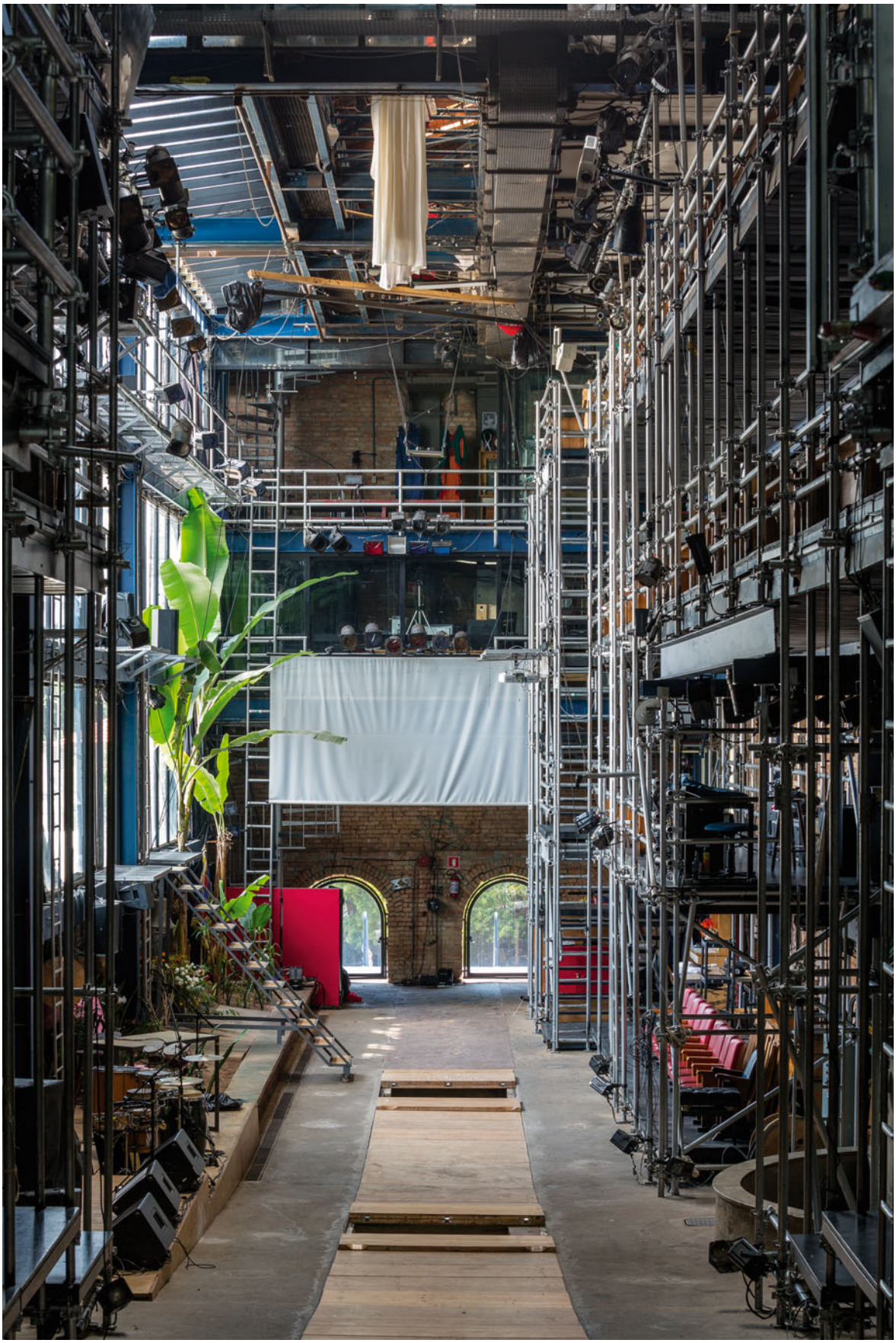
Interior public space of the SESC Pompeia Complex (*Photo* Calabrese)

Interior of the SESC Pompeia hearth (*Photo* Calabrese)

A landscaped mantle with the patron Saint George, SESC Pompeia (*Photo* Calabrese)

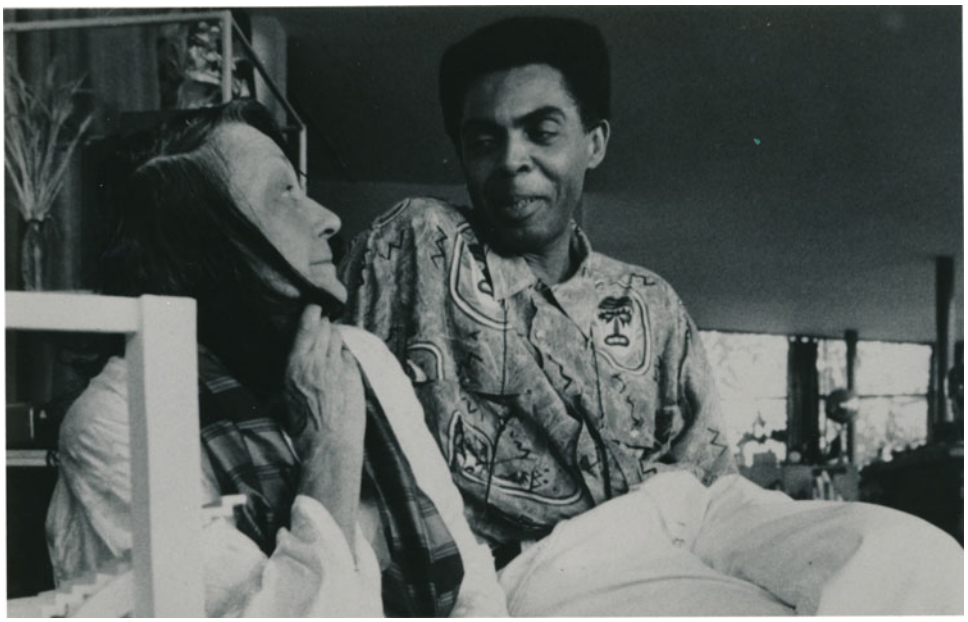
Entrance to the SESC Pompeia restaurant (*Photo* Calabrese)

Side exit of the SESC Pompeia complex (*Photo* Calabrese)



Teatro Oficina, São Paulo (*Photo* Leonardo Finotti)

View of the *Teatro Oficina* from the carpark (*Photo* Finotti)



Lina Bo Bardi with Gilberto Gil, Salvador (Courtesy Marcelo Ferraz)

Appendix A
A Conversation with the Authors: The Lina Bo Bardi Effect

Note to the reader: Providing a context for the preceding chapters in the book, the following conversation with the authors, via email, was collated in March 2016. It is not ordered chronologically or in any particular order.

Ana Carolina Bierrenbach (ACB):
In beginning our conversation, we should consider Brazilian culture. Steffen, what is your personal connection with Brazil? And how did you first come across Lina Bo Bardi's work?

Steffen Lehmann:
I was aware of the MASP museum since I had seen photos of it around 1985. My Brazilian wife Cida de Aragon had told me some anecdotes about the building, especially its vast public space underneath the building, but I could not get to Brazil before 1990. When I finally visited São Paulo, Brasilia, Belo Horizonte, Rio de Janeiro and Salvador, I not only visited the MASP and Glass House, but also discovered more of Lina's projects and spent some time at the Institute, doing research for my book *Brazil's Pathway into Modernism*, which came out of my Ph.D. studies. I was fortunate to meet the masters of Brazilian architecture before they died, such as Lucio Costa and Roberto Burle Marx, but I never met Lina Bo Bardi. Paulo Mendes da Rocha was very generous with his time. I remember I was so impressed with the SESC Pompeia and Lina's urban renewal projects in Salvador, Bahia, that I kept talking to my Brazilian architects' friends about it. The SESC is Lina's largest and most comprehensive project that took many years to be completed, and it reflects probably the best of her personal approach to process, re-use and participation of the end-user. Since then I have visited Brazil numerous times. Three things have interested me in Bo Bardi's work that have been there for over 25 years ago and are still there: firstly, the relaxed and almost natural way she composed building volumes, different functions and materials with each other. Secondly, the integration and celebration of public space: from the impressive open square at MASP to the long timber deck at SESC Pompeia called "The Beach". New concepts of public space are part and parcel of her buildings. And finally, the way she has managed to use heritage as a strategic resource. It was quite progressive at this time.

ACB:
Annette, what is your response on Brazilian culture? What is your personal connection to Brazil, and how did you first come across Lina's work?

Annette Condello:
For me, Brazilian culture began when I saw the 1980s film *Pixote,* which was so distressing, but it didn't put me off wanting to visit São Paulo. I have relations there. The first time I stumbled across Lina's work was in Portugal in 1997 quite accidently. When I was travelling around Porto for my Masters to document Alvaro Siza's architecture, in the context of Francesco Venezia's work in Italy, I went to the *Lello* bookshop and bought a booklet on the *SESC Pompeia Factory*. At the time I didn't know who Lina was. I actually thought the booklet was about Pompeian ruins. What I find interesting is that in Peter Robb's *Death in Brazil* (2003), he noted that in the early 1980s, Brazil still had a consulate in Naples. Architecture-wise, I thought about Lina's work when I was living in Mexico in the early 2000s. This is specifically the case with her Sugarloaf cable-car renovation project, Rio de Janeiro, in the context of Italian architect Adamo Boari's work in Mexico City—I've always thought there was something there, something they had in common. Since then I've done research in Manaus, Recife, Belo Horizonte, Brasilia and Rio de Janeiro for my Ph.D. and saw Lina's works in São Paulo with my Brazilian relatives. Uncannily, one of them runs the restaurant in the MASP. Also, I had been doing research on Pietro Maria Bardi, Pier Luigi Nervi, Gregori Warchavchik and Mina Klabin Warchavchik, which led me straight back to Lina's work. The other uncanny thing is that I found Steffen's

A. Condello and S. Lehmann (eds.), *Sustainable Lina*, DOI 10.1007/978-3-319-32984-0

writing on Brazil in Australia. We met and started talking about Lina's projects and so this is how the idea for the book emerged. While there are several publications on Lina Bo Bardi's work, we recognised that there was a gap with her adaptive reuse projects.

ACB:
When you think of Lina's work, does any other female architect role model come to mind which had a strong impact on yourself—except Eileen Grey of course, who was quite particular in her approach?

Annette Condello:
I've never really thought about it. I don't think about gender when I think about architects. I have to say Bernard Rudofsky and Italian architect Francesco Venezia have impacted me quite a lot. Italian architect Gae Aulenti has been on the back of my mind, especially her impressive conversion of the *Gare D'Orsay* railway station into the *Musee D'Orsay* in Paris. I first came across Aulenti's work in Manfredo Tafuri's *History of Italian Architecture: 1944–1985*. So reflecting back on her work what springs to mind is the *Grotta Rosa* on the Amalfi coast. Parts of it remind me of Lina's SESC Pompeia complex. Two other architects I think of are both from Chicago: Marion Mahony Griffin, whose modern Café Australia restoration project embraced the landscape, and more recently Jeanne Gang's Pan-American Aqua Tower. We mustn't forget Lina designed towers for the *Taba Guaianazes* complex too—bordered by a luxuriant wall.

ACB:
My next question is about landscape, which isn't simply about trees and bushes, but about garden design as a part of the project, as part of urbanism. There is random planting of identifiable trees and plants—often exotic, lush and colourful—juxtaposed with the building and circulation with specific framed views into the exterior, for instance, the view into nature at the Glass House or MASP garden, but also the more modest herbal garden at the SESC Pompeia. Renato, how would you describe the role of landscape and gardens in Lina's work? What about the Japanese resonances in her gardens?

Renato Anelli:
Lina travelled to Japan twice. In 1973, she visited the Seki-Tei at the Ryoan-Ji Temple in Kyoto where she took some photos of Japanese rock gardens. Understanding the "value of emptiness" is visible in some of her works. However, she encountered landscape in the rainforest along the Atlantic coast, which provoked a lasting fascination. Lina wrote about this lush environment numerous times. In a private letter to her husband, Lina expressed what it meant to her: "Today, I would make a house with a wood and stone oven, without windows, but surrounded by a large park, full of trees. I would throw the seeds at the wind in the woods". At the same time, after a visit to Gaudi's Park Guell in Barcelona, Lina built the sinuous retaining walls and walkways at her Glass House garden (Figs. A.1 and A.2). I believe she accomplished her passion for the tropical environment at the City Hall project's remarkable vertical gardens.

ACB:
Annette, you also have a strong interest in landscape. How would you describe the role of landscape and gardens in Lina's work?

Annette Condello:
Lina's buildings and landscapes provided her with the middle ground, which she treated as a nurtured form of luxury. This is also how she imagined to transform Brazilian cities. Many of Lina's projects, especially the ones that challenge the traditional approach like the SESC Pompeia, framed the "organic" approach. In this way, she bonded plants with ruins, which made her conserve existing buildings by adding green walls and "green rooms" or rather *plant* rooms. Lina enriched the landscape poetically by fusing pre-Columbian references and local references by carpeting floors with fresh eucalyptus leaves—from an Australian species. In this way, she allowed abandoned structures to breathe within their sites. I think she preserved the quality of luxury of the site, but in a new form. Lina resuscitated building sites and their cultural remnants to show how luxury has changed from a natural phenomenon through the landscape—to one about managing building waste in cities.

ACB:
So, how did Lina understand the notion of adaptive re-use and recycling of existing structures?

Renato Anelli:
Bo Bardi understood this notion in her ethnographic surveys in North-eastern Brazil, the poorest region, where she had great interest in the recycled utilitarian objects. She called this the "civilization of survival" and proposed folk skills in recycling methods as a source to refresh modern design against growing consumerism in the 1970s. In Lina's restoration projects we can find some parallels between recycling and the re-use of objects and structures.

ACB:
Coming from Italy to Brazil, Lina brought many of her own preoccupations and experiences, such as working with Gio Ponti, with her to the "new world." But we realise—once MASP was built and completed, and out of the way—she commenced to absorb the cultural traditions of

Fig. A.1 Lina Bo Bardi's sinuous retaining walls at the Glass House (*Photo* Federico Calabrese)

North-eastern Brazil and became even more curious about the African influences. It was also a cry of frustration at the overly European-influenced classical modernism attitude, as blindly promoted by some of her colleagues. The MASP, of course, is still much more part of a larger mesh of heroic, monumental institutional buildings along a main avenue (in the sense of the 19th-century planning concept for important institutions in Paris) that turns some cities into a metropolis. What would you say was the point that she finally moved on from the Italian background and fully immersed herself in this new world?

Steffen Lehmann:
There are a number of shifts in Bo Bardi's life caused by the different locations and influences she was exposed to. The early years after her arrival from Italy in São Paulo were still under the influence of Italian modernism and rationalism, and it took some years for her to move on. The final interior of MASP with its particular way to exhibit paintings was revised and re-designed, and here I believe we can detect a new, non-European conception of space and curation. It is wonderful to see that this exhibition concept using glass easels has recently been reinstalled. Interestingly, the design of MASP art gallery began already in the early 1950s, while its construction only started in 1961, and the first time Bo Bardi went to Bahia is in 1958. So her interest in the North-eastern culture is simultaneous with the delayed construction activities of the MASP. I don't think she expected that it would take her so many years to finally complete the MASP.

ACB:
It was also about appreciating more the day-to-day objects and artefacts of the poor people in Brazil. For instance, in the picture of a small Bahian stool in front of a vernacular house in Bahia, there is nothing apparently grand or heroic, but quite modest, utilitarian and simple. But if we look more closely at it, imagine its likely context, usage and its degree of artisan finesse and resourcefulness, the stool becomes something unique to this culture. Renato, in which ways do

Fig. A.2 Lina Bo Bardi's sinuous retaining walls at the Glass House (*Photo* Federico Calabrese)

you think Lina´s architecture has still an effect today? Has the work maintained its full architectural potential and in which ways do her works, writings and approach still influence a new generation of architects?

Renato Anelli:
Bo Bardi's architecture is still admired, in Brazil and abroad, maybe more today than before, when she was alive, designing the projects. As a *vanguardist* she was very controversial and a frequent target of conservative critics of different political and cultural positions. She believed in her capacity to change the world into a better place for common people, and she transformed herself into a tormented person as society development went in another direction. She accused modern architectural design of changing from an emancipatory tool to a technocratic practice. This caused in her an anguish, which we can feel in her writing, and it triggered her to look for new directions in architectural design. It is a remarkable characteristic, her political criticism of society didn't paralyze her design practice; on the contrary, it increased her capacity to take risks in her design work. Architects of many generations have been attracted by her work and statements, but, nowadays, they can't simply repeat them. The current status of architects within society has changed to a much more submissive position, in order to find commissions and keep any job to guarantee their livelihood. Do you think there is still room for such an innovative approach?

ACB:
It was always very important for Bo Bardi to envisage the way people will use her buildings. Over the last years, have you noticed any changes in the way her buildings in Salvador and São Paulo are actually getting used?

Renato Anelli:
In her drawings and watercolours, she tried to anticipate life scenes of people within her buildings. It wasn't mere illustration, but a kind of rehearsal, useful to her design process. Her main buildings in São Paulo were built during the dictatorship. So, the use of the public space underneath MASP

galleries, for instance, has increased a lot since then. It has transformed into an iconic spot for political parades. For the SESC Pompéia, the answer is more complicated: it is one of many venues of this corporate institution with its social aims, founded in 1946. As all SESC venues are very receptive and accessible to the public, the question is to identify in which way Fábrica Pompéia's architecture differentiates among them, or if this is actually the case at all. However, we know that Lina's work at Fábrica Pompéia changed the programme of use of all SESC leisure centres, as it was very innovative and forward-looking when she conceived it. It was such a public success that SESC decided to reproduce the experience in other complexes. Since it's inauguration in the eighties, the Pompéia leisure centre has hugely increased its number of public users, maybe even too much for its capacity. The same happened with MASP, it's almost too loaded with visitors. These projects were innovative when designed, looking to attract visitors and users in Brazil's new urban society, but now they seem quite small, almost shy in the face of bigness of contemporary mass society. Of course, São Paulo is now a metropolitan region with twenty two million inhabitants.

ACB:
Bo Bardi's work has become increasingly popular among the younger generation of architects and she has nowadays become quite a celebrity all over the world. Annette, do you think that this situation can interfere positively or negatively with the conservation of her legacy? Are we in risk of overlooking some of the complexities in her work?

Annette Condello:
Lina Bo Bardi's work is relevant today in terms of recycling or architectural spoliation. With respect to her legacy, yes her work most definitely interferes positively not only with the younger generation of architects but also children too. Baba Vacaro, Daniel Almeida and Rogerio Trentini's *A Cidadela: O Sesc Pompeia de Lina Bo Bardi* (2015), superbly illustrated, which remind me of Saul Steinberg's graphic art, is an important children's book because it shows the next generation the complex issues we face in linking Brazilian architecture, popular culture and sustainability, and how to be aware of them in their future (Figs. A.3 and A.4). Bo Bardi's work for children is not simply about "playscapes"—she went beyond that because she cared for all people, including the elderly, and SESC Pompeia shows this, especially when you visit its library and community spaces. You clearly see this. For the younger generation of architects the poetics of sustainability is necessary to understand the complexity of Bo Bardi's work as well her mind-set when she created such projects, especially the unbuilt ones since they convey the most incomplete stories and how we should handle waste in the future.

ACB:
Steffen, in which ways do you think architects should best deal with Bo Bardi's work and approach today, to keep it relevant and alive?

Steffen Lehmann:
The issues raised through her work are still highly relevant today. For instance, questions of reuse of existing structures or issues around the loss of local identity and the distinctive character of place in times of globalisation. If anything, these challenges have only become more important today. The most sustainable building is, of course, the building that already exists, so keeping the existing and salvaging and transforming for adaptive reuse—all these are topics that are very much of concern to architecture today. Dealing with over-consumption and our throwaway society to be more resource-efficient requires deep and long-lasting behaviour change in industry, society but also in the way we design, and to achieve such a transformational process requires a commitment from architects and designers.

ACB:
My last question is about urban renewal and the way Lina understood early that the revitalisation of the historic centre of Salvador could not be a single-minded tourism-led regeneration, but a cultural and housing needs-driven regeneration process. The quarter had to become again a functioning part of the wider enhancement of the city. Steffen, what are the challenges involved in such large-scale urban renewal projects and what is the type of thoughts one has when working on such regeneration projects?

Steffen Lehmann:
Cities are never finished, they are always in transition. For me, urban regeneration of larger quarters is not a problem of single urban renewal projects, but touches all other complex problems and can only be faced within the framework of a total city appreciation. Bo Bardi, with her aim to regenerate the derelict Baroque centre of Salvador understood this well and that she had to move from the specific to a more systematic and general approach: from the renovation project of Casa do Benin to the urban renewal program for the entire quarter, involving policy, community participation, and the definition of wider goals for urban renewal. She recognised the importance of the existing urban fabric and instead of demolition, she proposed to maintain and carefully regenerate it—this was a novelty in Brazil at this time. But without a broad view of the over-all renewal challenge, going beyond physical renewal, the local efforts may even work against the interests of the people and affected communities. Restructuring a derelict quarter and re-modelling a community within such an historic urban quarter sets up automatically an ideal for the life within it. Regeneration is more than just

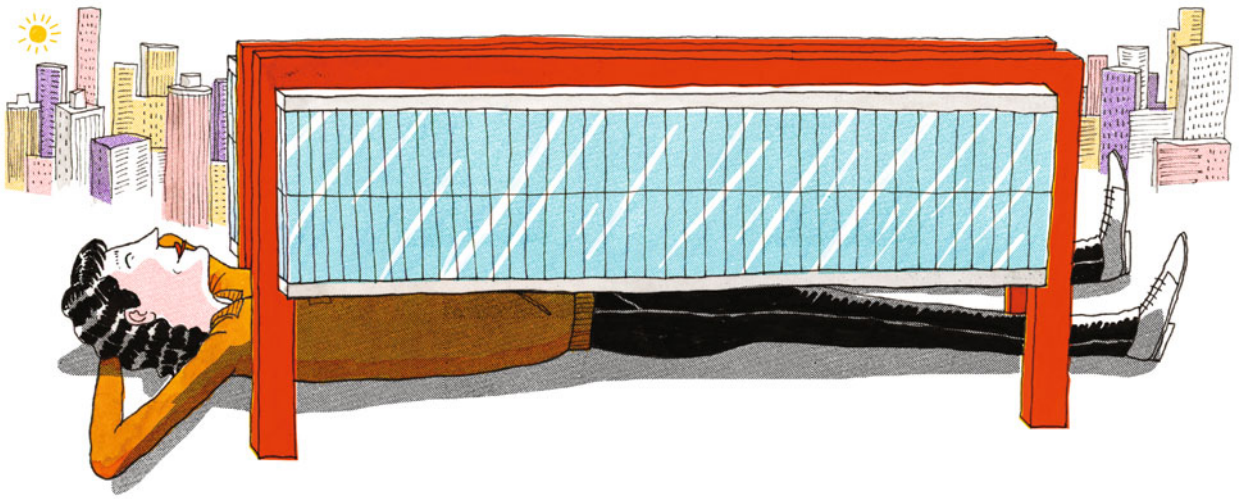


Fig. A.3 Lina Bo Bardi's lying beneath the MASP (Illustration by Daniel Almeida)

Fig. A.4 Lina Bo Bardi's Pompeia factory wasteland (Illustration by Daniel Almeida)

"redevelopment"—in Latin it means "rebirth", to be born again. So in Salvador it was not only about the economy but the soul of the city. In Bo Bardi's case, there are various scales of intervention but the "new" is always respectful of the existing context, designed with great precision and without imitation of the "old". Also, I would like to finish by saying restructuring in Bo Bardi's understanding means the indigenous regeneration of the traditional activities of the locality and a restructuring of the quarter's economic base.

Ana Carolina Bierrenbach:
Thank you all for the conversation.

SESC Pompeia brick façade (*Photo* Federico Calabrese)

Lina Bo Bardi walking along the street (Courtesy Marcelo Ferraz)

Hen in coop basket as featured on the cover of Marcelo Ferraz's *Arquitetura Rural na Serra da Mantiqueira* (1996) (*Photo* Marcelo Ferraz)

Appendix B
Lina Bo Bardi—Timeline in Brazil (1946–1992)

[Compiled by the Editors]

1946
Lina Bo Bardi marries Pietro Maria Bardi in Rome. In October, they travel to South America. | The Bardi couple arrive in Recife. | In Rio de Janeiro the couple meet Roberto Burle Marx, Lucio Costa and Oscar Niemeyer.

1947
The Bardis befriend Gregori Warchavchik. | The influential Brazilian diplomat and art collector Assis Chateaubriand invites Pietro Maria Bardi to become Director of São Paulo Museum of Modern Art (MASP). | Bo Bardi re-establishes her architectural practice in Brazil. | In October, she prepares drawings of her first renovation, the MASP at 7 de Abril Street.

1948
Bo Bardi curates the *Nos e o Antigo* (We and the Old) exhibition. | She designs jewelry by using Brazilian gemstones. | She establishes the Studio de Arte e Arquitetura Palma (with Giancarlo Palanti) to design economical timber furniture.

1949
She begins working on her first new building, a house for herself and her husband, the Glass House (*Casa de Vidro*) in suburban Morumbi, São Paulo.

1950
Bo Bardi co-founds Brazil's *Habitat* magazine, together with Pietro Maria Bardi. Therein, she writes about Brazil's Northeast, "Amazonas-poor architecture." | She designs the *Museo Sao Vicente*, São Paulo. | Designs the poster for the "Outskirts" Ball.

1951
She designs the *Museu a Beira do Oceano* in Sao Vicente. | Collaborates with Pier Luigi Nervi and his son as engineering consultants on the *Taba Guaianases* Complex in São Paulo (unbuilt). | Bo Bardi is naturalized as a Brazilian. | The Bardi couple move into their Glass House.

1952
She is involved in the first Brazilian fashion show, which incorporated fabrics designed for the Brazilian climate with patterns by Caribe, Burle Marx and Sambonet.

1955
Bo Bardi starts teaching as lecturer in Architectural Theory at the Faculty of Architecture and Urbanism, University of São Paulo (FAU USP); the same school that denies her a permanent teaching position in 1959.

1956
Between August and November, Bo Bardi travels to Italy and meets again with Gio Ponti.

1957
Bo Bardi writes her dissertation *Propaedeutic Contribution to the Teaching of Architecture Theory*, published in São Paulo. | She produces studies of a beach house (Casa de Praia) and preliminary designs of the MASP building on Paulista Avenue. | Between March and April Bo Bardi travels to New York and visits Frank Lloyd Wright's Guggenheim Museum. | Bo Bardi travels to Portugal and Spain, and documents rural constructions as well as the works of Antonio Gaudi.

1958
Bo Bardi moves to Salvador, Bahia, and becomes the director of the Bahia Art Museum, until 1964 when political conflicts keep her from working in Salvador after the coup d'état. | Bo Bardi Teaches "The Theory and Philosophy of Architecture" course at the Federal University of Bahia. | She meets construction engineer Norberto Odebrecht. Bo Bardi conserves the Odebrecht family mausoleum in Salvador with vertical planting. | Designs the Chame-Chame

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house (aka House of Nature) in Salvador. | Brazil wins the first World Cup soccer title.

1959

Bo Bardi meets film director Glauber Rocha. | She converts the *Sola do Unhao,* a former sugar mill in Salvador converted to the Bahia Modern Art Museum (MAM BA). | With Martin Goncalves, Bo Bardi designed and organized the *Bahia no Ibirapuera* Exhibition, opened at São Paulo's 5th Biennial of Art on 21 September.

1960

The new capital city, Brasilia, is inaugurated. Bo Bardi travels to Brasilia. | The construction of MASP continues and is delayed.

1963

Pietro Maria Bardi travels to Italy to publish the book on Roberto Burle Marx's landscapes. | Bo Bardi stays in Salvador.

1964

Start of the military dictatorship in Brazil, which would continue for over 20 years. Because of the military *coup d'état* in March, Bo Bardi leaves Salvador disappointed and travels back to São Paulo. | Bruno Zevi invites her to the University of Rome to present a lecture on the *Sola do Unhão* Complex.

1965

She designs plans for the *Butanta* Institute's Museum; *Lage* Park pavilion in Rio de Janeiro; and the beach housing estate in Ubatuba (all unrealized).

1966

Bo Bardi refines the new MASP design and its landscape; construction of the MASP is on its way.

1968

Opening of Bo Bardi's new MASP and meets Queen Elizabeth II.

1969

Bo Bardi designs the stage-sets for *In the Jungle of Cities* in collaboration with Jose Celso Martinez Correa. | She curates the Hand of the Brazilian People (*A Mao do Povo Brasileiro*) exhibition at MASP.

1970

Emergence of the Flower Power Movement that swaps from the US to Brazil. | In December Bo Bardi travels to Italy (Milan and Genoa).

1972

In this period, Bo Bardi reads Claude-Levi Strauss, Karl Marx and Herbert Marcuse's writings.

1973

World Oil Crisis. | Bo Bardi suffers from depression. During the military dictatorship she hardly procures any new commissions. | She travels to Japan.

1974

Bo Bardi turns 60 years old. In this phase, she repurposes key abandoned buildings. | She becomes involved with radical theatre productions.

1975

Bo Bardi travels to North Africa, specifically Marrakech, and then to Europe, mainly Barcelona, Paris, Rome and Milan.

1976

Bo Bardi incorporates eucalyptus timber elements in the Church of the Holy Ghost of Cerrado (*Igregja Espirito Santo do Cerrado*) design in Uberlandia, Minas Gerais and in other projects. | She begins collaborating with the two younger architects Andre Vainer and Marcelo Ferraz which grows into a long lasting collaboration.

1977

Bo Bardi enters an active phase: she begins to design the Rastro Perfumery in Santana de Parnaiba, São Paulo. | Bo Bardi prepares sketches of the rehabilitation of the SESC Pompeia Factory with a pool. Even though this pool was not built, she later called this place "The Beach."

1978

Bo Bardi travels to Japan again. | The large-scale deforestation of the Amazonian rainforest commences.

1980

Brazil reaches high inflation due to the rising cost of imported oil and lack of investment. | Between the SESC Pompeia Complex's existing sheds—instead of water-bodies, Bo Bardi sketches landscape and gardens, and adds a solarium deck. At the factory's entrance, she included sketches of aromatic and medicinal herbs used in traditional popular medicine. | Opening of the SESC Pompeia Complex. | Bo Bardi produces preliminary sketches for the Teatro Oficina in São Paulo.

1982

Opening of the Holy Ghost of Cerrado Church. | First phase of SESC Pompeia Complex is completed.

1983
A severe drought plagues northeast Brazil.

1984
Bo Bardi conserves the Teatro Oficina in collaboration with Jose Celso Martinez Correa. | The old city quarter of Salvador is registered as UNESCO World Heritage site.

1986
Second phase of the SESC Pompeia Complex opens—the sports centre. | Marcello Carvalho de Andrade formed *Pro-Natura* Movement to save the rain forests through the sustainable development program, which was set up to prevent clandestine logging. | Bo Bardi designs an extensive refurbishment plan for the historic area of Salvador. | She designs the rehabilitation project for the Urca Cable Car Station on Sugarloaf Mountain, Rio de Janeiro (unbuilt). | Bo Bardi returns to Salvador to renovate its historical centre.

1987
In Salvador, Bo Bardi rehabilitates the *Ladiera da Miscordia* Hill, designs *Coaty* Restaurant and Housing, and the Benin House Cultural Centre. | At this time, the military dictatorship is slowly loosening its grip allowing for more democracy.

1988
In Salvador, she designs Olodum House and a community centre in Caneia. | At MASP, she organizes the Africa Negra exhibition with Pierre Verger. | In Salvador, Bahia, Bo Bardi receives the *Comenda Dois de Julho*.

1989
She designs the Pierre Verger Foundation; in Benin the Brazilian House; and in Campinas the Theatre of the Ruins (all unbuilt). | In April, Bo Bardi is honored with the first exhibition of her work at the University of São Paulo.

1990
Bo Bardi converts an abandoned railway station into the Campinas State University. | She prepares drawings for the conversion of the Palace of the Industries into São Paulo's City Hall with its distinctive vertical garden wall. | The Instituto Lina Bo Bardi e P.M. Bardi is established to promote the study of Brazilian architecture and culture.

1991
Bo Bardi receives the Latin American Prize at the 4th Buenos Aires Architecture Biennial, Argentina.

1992
Bo Bardi dies at São Paulo Glass House at the age of 77 on 20 March. | When she dies Bo Bardi leaves unfinished designs such as the new São Paulo City Hall and a Cultural Centre for Vera Cruz.

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