

Beyond the Joá: infrastructures and urban expansion towards Barra da Tijuca

Além do Joá: infraestruturas e expansão
urbana em direção à Barra da Tijuca

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Abstract

During the 1960s and 1970s, the city of Rio de Janeiro was expanding towards the recently projected neighborhood of Barra da Tijuca. The massive construction of Elevado do Joá's infrastructural complex emerged as a key element of that expansion, connecting the South and the West zones of the city. This article aims to analyze how this construction served as a foundation not only for the expansion of the real estate market, but also for the creation of social imaginaries and new urban forms. Through newspaper articles from that time, I associate Joá's construction with a new model of urban life that was rising in the modernist neighborhood of Barra da Tijuca.

Keywords: Joá; Barra da Tijuca; infrastructures; urban expansion

Resumo

Nas décadas de 1960 e 1970, a cidade do Rio de Janeiro expandia-se rumo ao recém-projetado bairro da Barra da Tijuca. A grande obra do complexo infraestrutural do Elevado do Joá colocou-se como elemento-chave dessa expansão, conectando a Zona Sul à Zona Oeste da cidade. O objetivo deste artigo é analisar como essa grande obra serviu de base não apenas para a construção material da expansão do mercado imobiliário, mas também para a construção de imaginários sociais e de novas formas urbanas. Através de matérias de jornal da época de sua construção, associamos a obra do Joá ao novo modelo de vida urbana que se construía no bairro modernista da Barra da Tijuca.

Palavras-chave: Joá; Barra da Tijuca; infraestruturas; expansão urbana.



Introduction: toward the future

Toward the future: tourists should visit more than just Copacabana. Rio continues growing toward the sea [...] If you want to swim in the calm seas, without feeling smothered by the crowd of bathers and the buildings in the background, then just go to Barra da Tijuca. (*Jornal do Brasil*, 1/8/1970, p. 8)

Elevado do Joá, an infrastructural complex that connects Rio de Janeiro's Southern District with its Western District, stands out in the Rio de Janeiro landscape, sandwiched between the Atlantic Ocean and the Tijuca Massif. When it was built, it was the most expensive project undertaken by the Negrão de Lima administration (1965-1971). It was heavily criticized, laden with accidents and delays, and was considered unprecedented due to the terrain's geological conditions. One of its tunnels was even considered the second of its kind at the time, next only to the Yerba Buena Tunnel, in San Francisco, United States. Today, the two-level elevated expressway includes four tunnels and a 1.25-kilometer central viaduct, underpinned by 32 pairs of concrete pillars that support 6 car lanes and a bike lane. In addition to cars and trucks, promises, infrastructure, the expansion of Rio's urban fabric also cruised along this grandiose and arduous route.

The article called "Roteiro do Rio (em construção) para os turistas" (Road map of Rio (under construction) for tourists" published in *Jornal do Brasil* on January 8, 1970, points to the path to the "future". Specifically tailored for the tiers of the population with higher

buying power looking to achieve life endeavors of distinction and privilege, a specific future was envisioned for a part of the expansion of the city. In the interest of advancing "toward the sea", the city of Rio de Janeiro and its urban development produced several layers of promises, materialized in works and real estate developments that distinguished a part of the city where public attention and the offer of urban infrastructure would make it possible for people to live a cosmopolitan, but *quiet, prestigious* life.¹

The Elevado do Joá works represent this construction of promises that were supported by infrastructure aimed to create possibilities for a life of prestige. Prior to its inauguration, the above-mentioned article already pointed to the "future" that it would allow for those in pursuit of tranquility.² Alongside the article, a chronicle by the poet Carlos Drummond de Andrade extols the Rio de Janeiro summer, traditional of the wealthy Southern District that "erupted in Barra da Tijuca" (*Jornal do Brasil*, January 8, 1970, 1st Section, p. 8). In its entirety, *Jornal do Brasil's* beginning-of-the-year page builds projects and aspirations for a continuation of the expansion of waterfront Rio de Janeiro, still devoid of urban infrastructure that could make this possible. The roads that would lead to this "future" for Barra da Tijuca would be "narrow, tortuous, and dangerous". The construction of the grandiose Joá infrastructure complex, with its 3-kilometer bridges, tunnels, and viaducts, would solve this issue, these forsaken yearnings. "However, the drama will be over by late 1971", says the article. "Three tunnels, a freeway, and a bridge will connect the Southern District to Barra da Tijuca in 10 minutes". Once again, the tunnel giving way to the city's spread toward the sea. Another step of the expansion,

paving the way for new promises. By connecting Barra to the Southern District, Elevado do Joá allows the flow not only of cars and people, but of enterprises, imaginations, and many other pieces of infrastructure that link the new region to Rio's urban fabric.

The purpose of this essay is to bring to bear a view on infrastructure as a composition of human and non-human agents and as a "new optical field through which we can examine the lived dimensions of urban society" (Chattopadhyay, 2012 apud Addie, *Glass e Nelles*, 2020, p. 11), on Elevado do Joá to think about the construction of new possibilities for life and transformations in the "physical and symbolic cartography of Rio" (O'Donnell, 2013, p. 23). This major tunnel framework that, from this infrastructural view plays a prominent role in allowing different flows, from the most abstract and invisible to the most banal and apparent, was essential to the history of urban expansion in the city of Rio de Janeiro. From the opening of the roads to Copacabana, in 1892, to the construction of the Joá and Pepino tunnels, connecting the Southern District of the city to the new modernist district of Barra da Tijuca, in 1971, the city grew along the seafront by means of the grandiose works that perforated the massifs. Based on Elevado do Joá – officially known as Elevado das Bandeiras – I seek to investigate the role this infrastructure plays in the promises that were built in the Barra da Tijuca neighborhood in the 1960s and 1970s. In other words, I aim to examine the intertwining between the construction of infrastructure and the construction of promises as an engine of urban expansion.

To this end, first I briefly return to the role the tunnels played in the history of the advance toward the Southern District of Rio,

then I undertake a more in-depth investigation of the construction and inauguration of Elevado do Joá. Based on these cases, the main source of which are stories published in newspapers of the time, I return to a theoretical discussion about urban infrastructure and undertake a sociological and anthropological analysis of it aiming to place tunnels as central subjects for discussion, especially with regard to Rio de Janeiro. As symbols of technique and progress, these brick, cement, stone, and steel materialities blend in with the mountains, the sea, and trees, both physically and symbolically, building a dual landscape. It is the infrastructure that paves the way for a bucolic life. Great works are built on the promise of an idyllic life. It is the pledge of integration with the city that makes the promises of a life isolated from it feasible. As the ultimate symbols of modernity, of man's action on nature, these concrete, wire, and brick compositions that pierce mountains and forests bordering the ocean are contradictorily essential for the possibility of living a life in nature, an alternative to the chaos of cities.

Making way for the sea: Tunnels in the construction of the urban expansion of the rich

Opening tunnels has played a leading role in the spread of the urban fabric of the city of Rio de Janeiro since the late 19th century, at least in terms of one of the meanings of such expansion. Just as it opened the "path of the sea" that turned Copacabana into the main future promise for the life of the upper classes

(O'Donnell, 2013), with the 1892 Real Grandeza Tunnel (currently known as the Old Tunnel) and the 1906 Carioca Tunnel (currently known as the New Tunnel), opening tunnels was also essential for the expansion that bordered the shore to continue. Two important tunnels were inaugurated in Rio de Janeiro in 1971: The Dois Irmãos Tunnel (currently the Zuzu Angel Tunnel), which connected Gávea to the São Conrado neighborhood, and the Joá Tunnel which, along the 3 kilometers of the homonymous elevated expressway, connected São Conrado to Barra da Tijuca. With this policy – also passing through the 1960 Sá Freire Alvim Tunnel, which linked Copacabana to Ipanema – the State of Guanabara directed the main path of its expansion from Copacabana along the coast toward the West. Paths were built through the mountains that cross Rio de Janeiro to integrate new areas into the city's urban fabric, enabling growth in the real estate market, in the middle and upper classes, in civil construction, as well as in lifestyles and promises for the future.

The city's main postcard today, the Copacabana neighborhood is a well-known example of rapid urbanization and of the arrival of infrastructure in an area that until then had been “unurbanized”. By way of illustration, while the city grew 240%, the district grew 1,500% between 1920 and 1970 (Velho, 1973). So, Copacabana is an important case for analyzing the construction of Elevado do Joá for several reasons: First, the conditions and promises on which the district's initial occupation took place have parallels with the conditions of the spread to Barra da Tijuca, which Balthazar (2020, p. 92) classified as a portrait of a “temporal order of successive repetitions”; second, the consequences of

this wave of urbanization proved to be one of the main drivers for the advancement toward Barra da Tijuca, producing a certain “urban chaos” whose alternative would require new territories to materialize; third, the neighborhood has a certain “endowment” (O'Donnell, 2013), a prestigious lifestyle and status, something that seems to be of importance to build promises tied to the expansion to Barra, which seeks not only to follow the waterfront, but also the prestige and urban cultures linked to it. Lastly, I propose a notion that there seems to be a duality between isolation vis-à-vis connection with the rest of the city that is fundamental to both experiences, and that tells us a lot about the dialectical relationship between infrastructure and nature that I intend to address.

Beginning from the inauguration of the Real Grandeza Tunnel, O'Donnell (2013, p. 40) presents the main promises that were made relative to the “new” neighborhood. Written on the tickets of the tram that arrived at the Copacabana station, “quadrinhas” (popular poems) exalted both the bucolic aspect and the ideals of modernity that, at that time, were linked to the value of insalubrity. An “Antidote to a nerve-wracking urban life”, a “place of beauty and contemplation” are some of the exalted ideas, alongside “prime region for investment”, and “place of the future”, as the author rates it (ibid.). Velho (1973), analyzing the already densely urbanized Copacabana, points to its cosmopolitan, big-city character a few decades later. The tunnels the “quadrinhas”, trams, and the elites went through to the “empty” Copacabana soon began to carry electricity, asphalt, buildings, and the middle and lower classes. The path the tunnels opened seeking the waterfront led

to a complexity of ideas, temporalities, and materials. This infrastructure enables many and diverse flows, material and symbolic both, and they change as the city flows through them and establishes itself. Copacabana's endowment, the cosmopolitan cultures, and the beach lifestyle reached the seaside through the tunnels, as did workers and the real estate market. Enabling the flow to an "empty" and faraway place, the tunnels also connect it, and the same real estate market that sells itself for its proximity to nature and a return to an ahistorical past (Balthazar, 2020), builds a neighborhood that is a symbol of the massive presence of technique, population, and of urban infrastructure.

In just a few decades, Copacabana resulted in an urban "failure", an example of "urban chaos" that journalists criticized heavily in the second half of the 20th century (Texeira Alves, 2020). However, prestige and "endowment" did not cease to establish themselves. Urban law flexibilization aimed at encouraging the occupation of the region, added to the need for labor to supply the services that quickly appeared in the neighborhood, transformed the bucolic beach in its "pre-civilization stage" (O'Donnell, 2013, p. 32), into a neighborhood crowded with tall buildings and surrounded by slums. The streets, which were to be "an antidote to a nerve-wracking urban life", quickly became dense with heterogeneous people, cars, and pollution. Copacabana was being transformed from a "peaceful neighborhood by the sea, with houses on spacious plots of land", into a "forest of reinforced cement", from a "relatively isolated place" to "something like another city center" (Velho, 1973, p. 27). As it exhausted new land possibilities in the neighborhood, the

real estate market expanded to adjacent areas that also had what was needed for the promises of a prestigious life and a beach lifestyle: the neighborhoods of Ipanema and Leblon.

Finding the beach in search of a "future" for Rio's elites, urban expansion followed its path to the West, bordering the same sea. The Ipanema and Leblon neighborhoods, currently home to the most expensive square meter in Brazil, also had the same idyllic characteristics as Copacabana did, and experienced a rapid arrival of the real estate market and urban infrastructure. This shift the upper classes made to the Southern District's newly built neighborhoods outlined a sharper segregation of the rich and poor in the city (Lago, 2015). What Abreu called a "first phase of accelerated expansion of the urban fabric" (1987, p. 43), and Lúcio Costa considered a "second phase" of the city's occupation (Costa, 1969), was only possible with the construction of tunnels. As these neighborhoods became occupied, this infrastructure served not only for the flow of materials and ideas, but also as a divider of the city. The "on this side" of the tunnels, the one close to the sea, designated a certain "endowment", so much so that middle and upper class families traded in their large houses in the Northern District for smaller apartments, but which brought them a certain status and would put them close to the place "where things happen" (Velho, 1973). Whether a Copacabana resident shouting at someone to go back to the suburbs, or young people from the middle classes who frequented the beach in Leblon calling the suburban people those from "beyond the tunnel" (*ibid.*, 1998, p. 26), the coastal region of the city was different from the rest, simultaneously connecting

and isolating itself through the tunnels that cut through the natural separation that the mountains created. The Santa Bárbara and Rebouças tunnels, which connect the Southern District to the Central District, also illustrate this duality. Several months ago, the mother of a pregnant woman fatally shot by the police mentioned, live on television, that there is a difference between the value attributed to lives in the Southern District and those “from beyond the Rebouças”.

Following the chronology of urban expansion along the seafront, Leblon and Ipanema quickly came up against the same exhaustion in terms of possibilities for real estate expansion. Like Copacabana, the heterogeneity, the presence of “favelas,” and car traffic challenged the quiet, peaceful life that attracted the first families of the elite to move there. The search for new alternatives, both by residents and by real estate capital, was already present in the late 1960s. The fire that broke out in a “favela” in the heart of Leblon, and its rapid use for the construction of the first condominium in the Southern District of Rio exemplified this demand. The destruction of what was left of the Praia do Pinto “favela,” in 1969, in the midst of a policy of massive removal of “favelas,” revealed what was seen as an issue and what came up as an alternative. With the ghost of the Copacabana urban chaos knocking at the door it did not suffice to remove the unwanted. At that moment not yet completely closed, condominiums introduced a possibility for a new way of experiencing the city, a new way of combining the duality of isolation and integration. However, the new land necessary for this possibility to become real was on the other side of the mountains.

This need to combine the possibility of having a life isolated from certain aspects and places of the city along with an integration into its urban fabric, infrastructure, and services in order to maintain a certain status, was being blocked by mountains. With an urban plan by the greatest urban planner of the time in progress, in the also “distant” and “empty” Barra da Tijuca – as Copacabana had been considered almost a century before – new tunnels were needed. The “narrow, crooked, and dangerous” roads mentioned in the article presented earlier made these new areas reachable, but not in a way that allowed them to be integrated into the urban fabric, nor did they enable the arrival of infrastructure. In this context, where there was a need to expand the real estate market, added to a sophisticated urban plan in progress and to the demand for alternatives to the already densely urbanized Southern District of Rio de Janeiro, Elevado do Joá appeared as a fundamental infrastructure for a project to expand and build a new life possibility.

Elevado do Joá: the future under construction

Elevado do Joá plays a significant role in the expansion of the city’s urban fabric toward Barra da Tijuca. So, a closer look at this infrastructure can help us understand the different flows, both material and symbolic, that helped to build this new, modernist neighborhood and, with it, a new way of living in the city. Resorting to a few *Jornal do Brasil* articles, here I analyze the process involved in the physical construction of the

Figure 1 – *Jornal do Brasil*, 3/7/1971

Source: Digital Newspaper Library, National Library (online).

Elevado expressway, seeking to point out the centrality of this process in the symbolic construction of the promises that were linked to this new stage of the city's seaside expansion.

“Barra da Tijuca will be closer to the people of Rio de Janeiro with the new motorway” (*Jornal do Brasil*, March 7, 1971, 1st Section, p. 34), read the headline of a March 1971 story. “The most important and most expensive work carried out during Mr. Negrão de Lima’s Administration”, the Lagoa-Barra motorway promised to make the integration the real estate capital had been demanding so much, from the South seaside area to the “empty”, but planned lands of Barra da Tijuca. The region had already been part

of the city’s road map for decades, with few businesses and homes, and could be accessed both by the “tortuous and dangerous” roads that encircled the hill slopes, and by means of the Jacarepaguá side, through the most central part of the city’s territory. Walt Disney himself paid a visit to the area in 1940, three decades before the elevated expressway was built. This accessibility, however, did not match the desires and ideals of progress and future, and of the infrastructure that would turn that “Rio de Janeiro hinterland” (Corrêa, 1936) into an integral part of the city’s urban fabric. With the Lagoa-Barra motorway, or more specifically the Elevado do Joá stretch, “fast, easy, and safe access to Barra da Tijuca” would finally become a reality.

Based on newspaper articles, Balthazar (2020) showed how the promises related to the Barra da Tijuca neighborhood often repeated what had previously showed up in Copacabana. The exaltation of pristine nature, of a return to an ahistorical past, of the Rousseauian state of nature against the evils of the modern city that created the city center as a problem and Copacabana as a solution, in the 1970s brings the latter as a problem and Barra as a solution. These “successive repetitions” that mark Rio de Janeiro’s urban development served to create a demand and a void for the alternative to be built. However, it is difficult to treat the Barra case as a series of repetitions of what happened almost a century earlier. In the meantime, various urban phenomena and experiences transformed not only demands and alternatives, but also notions about the city. As I sought to show in another study, we must talk more about a “procedural order of successive accumulations” (Agueda, 2021, p. 157) that went along building people’s imagination around the condominiums and the way of living of Barra da Tijuca over several experiences that unfolded in this expansion process.

Repeating mechanisms of the past to create new alternatives, the symbolic and material construction of Barra da Tijuca needed more complex mechanisms to become feasible. Instead of the tramway tunnel that opened the way to Copacabana, a colossal infrastructural complex is built here. Instead of flexibilizing building regulations to attract investors, a sophisticated modernist urban plan fulfilled this role in Barra. While in Copacabana the “future” found much more of its sufficiency in nature, technique and urban infrastructure were crucial in the new

neighborhood that was being built. In this new stage of the city’s urban development, nature, and life “away” from the city would only be possible if this “city” somehow came with it. Elevado do Joá appears in this attempt to conciliate technique and nature, the cement of human action in cities and the untouched green of the bush, the life of the metropolis and an “anti-urban feeling” (Low, 2001, p. 45), allowing people, things, and ideas to flow for the construction of Barra da Tijuca.

In the very unique context of the period of the so-called “economic miracle,” a military dictatorship, an abundant supply of real estate credit, and grandiose infrastructural works – worthy of note is the Rio-Niterói Bridge, which was considered the second largest bridge in the world when its works got underway, in 1969 –, it does not suffice to look at the Barra da Tijuca urban expansion process as a simple repetition of mechanisms of the past. In the 1970s, inclusion in the urban fabric and its infrastructure appeared as something necessary for the middle and upper classes who were looking for prestigious alternatives. The headline of the January 1970 article worded “Rio (under construction)” (Jornal do Brasil, January 8, 1970, Section B, p. 8) already points to the role of the works and of the integration of the region with the city as a whole, even if to sell a nature and a certain distance from dense urbanization. As Harvey points out about road construction in Peru, in this context there was also an “overwhelming sense that infrastructures are the current currency of investment across the planet, the go-to promise for a better future” (Harvey, 2018, p. 80). The “toward the future” that Elevado do Joá promised was already quite different from the promised future of

Copacabana. Following the author’s proposal, I begin from a perspective that explores the force of infrastructural promise as a complex and unstable temporal alignment, as I look to specify how the relationship between past and future is articulated in and around the practices of road construction” (ibid., p. 82). The difference is that the Elevado expressway is, beyond a street, a bridge, and a tunnel too.

As this large concrete work that extends across the face of a mountain is surrounded by forest and sea, the promises linked to it – directly or indirectly – have to do with a new

way of living. Allied to the flagship urban form of the urbanization of Barra da Tijuca – the large residential condominiums –, such promises reconcile the contrasting ideals of quiet tranquility with the offer of cutting-edge, abundant urban infrastructure. Living “far away” from the chaos of the city and, yet, being immersed in its totality of opportunities and connections meant more than just new ventures or new territory. The renovation proposed for this expansion – explicit both in the advertisements and in the names of the first condominiums in the neighborhood, Nova

Figure 2 – *Jornal do Brasil*, 11/23/1970



Source: Digital Newspaper Library, National Library (online).

Ipanema (New Ipanema) and Novo Leblon (New Leblon) – carries a new way of thinking about the urban environment, the outcome of past experiences in the neighborhoods in the Southern District. Planning with nature, an “unimpeded view”, and broad avenues without spaces for pedestrians, large shopping centers and supermarkets dividing the hilly landscape in the background, are all portraits of this conciliation between infrastructure and nature, the massive concrete of the beams stretching over a beach and beside pristine trees.

But this attempt at conciliation came at a price. Not only the price of being the most expensive of all of Negrão de Lima administration’s works, but also the price of the delays and of the lives of workers. An August 1970 article called “Another delay” says that “Elevado do Joá was not expected to be ready on July 2nd” (Jornal do Brasil, August 16, 1970, 1st Section, p. 31) instead that a new postponement meant that its conclusion was announced for December of that year, leaving Alto da Boa Vista or Jacarepaguá as the only alternatives to “drivers who do not want to be stuck in a monster traffic jam for four or five hours”. This shows us how that piece of infrastructure would come to put an end to this “monster traffic jam,” something that did not match the promises of a quiet, peaceful life of the until then “empty” Barra da Tijuca. The following month, another story further postpones the conclusion, stating that “Barra-Lagoa will be used in January” (Jornal do Brasil, September 23, 1970, p. 15). This month, however, another piece of news states that the “Barra motorway remains a dream” (Jornal do Brasil, January 24, 1971, p. 5) and that “despite the promises [...] there is still a long way to go before it is ready”. The report

goes on to say that “those who want fresh air and clean beaches will have to continue facing traffic jams.” Also mentioned is how the delay “will end up harming the image of Barra da Tijuca” and that it would be impossible to complete the work while Negrão de Lima was still in office, unless it was inaugurated merely as a “precarious release of a few sections”. Five days later, still in January 1971, a new story announces: “Barra Motorway with traffic within a month” (O Globo, January 29, 1971, Morning, p. 10). The inauguration, however, only took place on March 13 of that year, two days before the end of Negrão de Lima’s term. All of this because, in July 1970, before all these stories, *Jornal do Brasil* had this to say about the construction of the elevated road system: “DER guarantees work without delay” (Jornal do Brasil, July 25, 1970, 1st Section, p. 5).

More than the delays, the work was also marked by accidents and fatalities. Not to mention the deaths resulting from removals in the city, intrinsically connected to this same urban expansion process, Elevado do Joá itself was the scene of fatalities. In fact, one of the stories above, which guaranteed the work would be completed without delay, was published together with the article about the accident that killed two workers – showing the need to fulfill the promise at any cost. On the night of July 23, 1970, the “Joá tunnel bridge collapsed,” initially killing two workers and leaving 23 injured (Jornal do Brasil, July 24, 1970, p. 1). The wooden shoring did not support the 70-tonne concrete slab, which collapsed burying workers, and the number of missing people was still uncertain while the firefighters were searching through the rubble, since the company responsible for the work could not inform the number of

employees present at the construction site at that time. A story published on July 25 revealed that workers blamed the accident on the precariousness of the shoring, in the same week that the construction company, Rossi Engenharia S.A., had bragged about setting a record of one concrete beam per day (Jornal do Brasil, July 25, 1970, 1st Section, p. 5). Despite the worsening condition of some of the survivors and the risk of another slab collapsing, the general director of DER (the Highway Department) stated that “at two o’clock in the morning, shortly after the accident, there were already people working at the site, showing that it practically did not stop”. Right below that, the newspaper tells the story of José, a worker who died with a letter he had just received from his family in his pocket.

The most expensive and sophisticated infrastructure work built by the government at the time crumpled because of the precariousness of the wood that held it up. While some workers were getting worse and others were buried, “the work does not stop”, trying to set the record of concrete beams placed per day. After all, as mentioned in a report above, the delays affected the image of Barra da Tijuca and its promises, and the construction of the “future” could not stop – including due to pressure from store owners, construction companies, and residents’ associations. That same month, the Niemeyer Avenue – also coastal and important for the connection between the Southern District and Barra da Tijuca – was blocked due to a crack in the pavement (ibid., p. 1). However, both works and promises continued, in the race to

Figure 3 – *Jornal do Brasil*, 7/24/1970



Source: Digital Newspaper Library, National Library (online).

inaugurate them before the end of the Negrão de Lima administration. Four months after the accident, another Elevado beam collapsed, killing one more worker and injuring eleven others (ibid., March 12, 1971, p. 1). Four months after that, now in March 1971, a third collapse injured four more workers, leaving one of them with a fractured skull, exactly on the eve of the day the governor himself inaugurated the Elevado expressway (ibid.). Meanwhile, newspaper reports extolled the beauty of the infrastructure, such as the article from November 1970 – the same month of the second collapse – which read: “Lagoa-Barra is described as the most beautiful road” (Jornal do Brasil, November 23, 1970, 1st Section, p. 24). Five days after the inauguration, in

March 1971, a story discusses the dangers of the Elevado expressway, with power poles in the middle of the road and the lack of signs, which “turn the motorway into an adventure to Barra” (Jornal do Brasil, March 18, 1971, 1st Section, p. 5).

“Negrão is facing a marathon to inaugurate his work” (Jornal do Brasil, March 14, 1971, 1st Section, p. 26) features a story with a photo of the then governor cutting the commemorative ribbon of Elevado do Joá, a few days before the end of his term in office. These inauguration events, rituals in which the infrastructure is staged as an event, expose political intention and the opening of the infrastructure as possibilities for the future (Harvey, 2008). During the official opening of

Photo 4 – Joá tunnel work, 1970s



Source: Digital Newspaper Library, National Library (online).

the Elevado infrastructure, the governor did all he could to ensure the political capital of the feat. Regardless of the issues that were reported on, the deaths and delays, a grandiose work paved the way to new possibilities, investments, promises, ways of life. Smiling as he cut the ribbon surrounded by friends and supporters, before having to hastily go on to the next inauguration of the day, Negrão de Lima inaugurated a world of new possibilities, flows, and interactions that would take place through and due to that bridge and tunnel. Much more than improving traffic, it created the possibility for people to move away from the harmful aspects of dense urbanization, of “isolating” themselves without ceasing to integrate. Much more than allowing the arrival of people and cars to Barra, it enabled the arrival of a new way of life, distinguished by a specific expansion of the city toward the West. This expansion along the waterfront is much more than a geographical distinction, instead it represents a distinction of status and of infrastructure offers, a distinction of lifestyles, even though it is the same Western District that was already inhabited and that could already be reached through other paths.

Infrastructure flows: tunnel and bridge. Water, electricity, asphalt, and telephone too

Elevado do Joá is an interesting object to analyze from the infrastructure viewpoint. Here I refer to the notion of an infrastructural turn in urban studies (Venkatesan, Bear and Harvey, 2018; Addie, Glass and Nelles, 2020), considering infrastructures as “built networks

that facilitate the flow of goods, people, or ideas and allow for their exchange over space”, (Larkin, 2013, p. 328) and as “socio-technical assemblages of materiality, discursive, fiscal, and organizational forms, and relations” (Von Schnitzler, 2016, p. 25). We try to establish dialogue mainly with the work of Penny Harvey (2008) on the construction of roads in Peru. We argue, however, that Elevado do Joá has specificities that make it a peculiar piece of infrastructure that deserves our attention and tells us a lot about the process of urban expansion to Barra da Tijuca – along the waterfront.

Looking at infrastructure as a “matter that enables the movement of other matter” (Larkin, 2013, p. 329), the infrastructure complex comprising the Joá bridge, tunnel, and viaduct certainly fits this definition, as a materiality, a concrete object (and made of concrete), whose main function is to allow the movement of other materialities. In essence, tunnels and bridges connect two points, having as one of “their practical goals joining dissociated terms” (Simmel, 1996, p. 11). They enable the movement of people and goods and, in the contemporary city, mainly of automobiles. For a neighborhood like Barra da Tijuca, the urban planning of which was made with broad avenues and without a concern with pedestrian locomotion, the passage of cars was indeed essential. However, the construction of the elevated expressway enabled the flow and movement of so many other things, both material and immaterial.

Elevado do Joá, as a tunnel and a bridge, stands as an enabler of literal flows. In addition to the cars that cross it daily, it allows the passage of an expansion, the passage of the reach of the urban fabric of the city. It

allows the flow of projects (Velho, 2003), of families seeking new lives for their children. It allows the passage of progress, which would transform the “Rio de Janeiro hinterland” into the “Miami of Rio”,³ or the “Switzerland of Rio de Janeiro”.⁴ It allows the passage of real estate capital, with its investments, and of real estate credit. It also allows the social flow of the rising middle classes – or the so-called “new rich” – who migrated toward the waterfront in search of status. And, above all, it allows the flow of new infrastructures.

Focusing on an infrastructure allows us to see day-to-day dynamics, often invisible or hidden behind the materialities of wires, light posts, pipes, or the ordinary and even boring character of the infrastructures, being “simultaneously transparent and opaque” (Star, 2020, p. 61). However, the focus on an infrastructure complex that serves as a basis for the establishment of so many other infrastructures has the potential to show us broader dynamics, which are related to the imaginaries about the city and about new urban configurations and ways of life. In and of itself, Elevado do Joá is a “set of operations”, this entanglement of networks, materials, and nature (Rao, 2015) made explicit not only by the intertwining of concrete with bricks, wood, wires, hills, the sea, and trees, but also by the tanker trucks that drove through there to reach a place where “there was never any water”, (Jornal do Brasil, April 26, 1979, 1st Section, p. 15) and by the “electricity, gas, water, telephone and medical assistance” that arrived “in the city’s newest neighborhood” (ibid., July 29, 1979, Revista de Domingo, p. 114). A 1979 news piece illustrates this by pointing out that

“street gas, which broke through the hills to travel from Leblon to Barra,” (ibid., January 11, 1979, 1st Section, p. 5) had already arrived at the large condominiums that appeared isolated in the landscape, still lined by sandbanks and mangroves. Far beyond representing the relational character of infrastructures (Graham and Mcfarlane, 2015) or their dynamic and dense intertwining (Bucciareli, 1994 apud Star, 2020) the Elevado object works as infrastructure for other infrastructures – a meta-infrastructure? – a materiality that enables the movement of other infrastructures, a complex support system not only for modern societies (Carse, 2017), but for more of these support systems. By its very nature, it reflects a recursive quality of infrastructural relations—the enfoldings and overlaps of multiple coexisting infrastructural systems” (Harvey, 2008, p. 85). It was only possible to “break the hill” through Elevado tunnels; and staying along the coast was only possible through the Elevado bridges. This leads us to an important distinction: The specificity of the expansion along the waterfront.

The city of Rio de Janeiro’s urban expansion took place in a dual way. Whether based on the classification of Abreu (1987), who considers the expansion to Copacabana the first phase of accelerated expansion of the urban fabric, or on that of Lúcio Costa, who divides this process in two, between the occupation of the downtown region as a first phase, followed by the expansion to the Southern and Northern Districts, and then toward Barra da Tijuca (Costa, 1969), both identify such duality, when there was one expansion toward the sea and another

one that penetrated the territory. What we are discussing here is not the difference in service provision and in the public authorities' priorities, or a "rich Southern District and a poor Northern District," but a difference in terms of proposals for lifestyles and ways of living. Coastal Rio de Janeiro has historically carried a specific ethos, lined with beaches and prestige, always in opposition to the suburbs. The city's tunnels play an important role in this opposition, differentiating not only the bodies "from beyond the Rebouças" from those "beyond the tunnel" and those without "endowment", but also the possibilities for life and for relationships with the urban environment. The Barra da Tijuca expansion stage, which the plan's author considers as a way to put an end to the division of the city and to "close the cycle" in a meeting point between the two expansions, actually took place in a contradictory simultaneity between the opposition and appropriation of the Southern District itself. Seeking to maintain the status attached to this expansion "over the waterfront," but distancing itself from the "urban chaos" and from what was considered – or built – as urbanization problems, the construction of a bridge and tunnel complex helps to pave the way while, at the same time, keeping away this new possibility that opens up in the "physical and symbolic cartography of Rio" (O'Donnell, 2013, p. 23).

Harvey (2008) attributes to the roads and their stories the possibility of revealing "the oscillating and contradictory impulses of territorial integration and deterritorializing extension" (p. 86). It is based on this dual

and conflicting dimension that we propose we analyze Elevado do Joá. By placing itself as this great piece of concrete infrastructure, a symbol of technique and modernity, with the second tunnel of its kind in the world, it brings "the promise [...] of forward movement, of accelerated transition from the past to the future" (ibid., p. 87). Meanwhile, when delineating itself "as the most beautiful road", with views of the postcard Pedra da Gávea monolith and of the Atlantic Ocean, ranging for 3 kilometers isolated from other constructions, streets, and buildings, he mentions an opposite path, of a certain return to the past, both the Rousseau ahistorical⁵ one to which Balthazar (2020) refers, and to that more recent past, of a quiet Southern District lined with beaches. In this confluence of temporalities, this infrastructure complex carries the imagination that was built of the "new neighborhood" of Barra da Tijuca, of isolation without giving up on services, of an integrated, easy-to-access "distance". This idea is beautifully illustrated by the July 1979 edition of *Jornal do Brasil's* Sunday Magazine. Featuring on its cover a photograph of the Barra beach with the words "Barra da Tijuca: A new lifestyle" (*Jornal do Brasil*, July 29, 1979, *Revista de Domingo*, pp. 95-126), the entire issue alternates between pages that evoke the bucolic aspect of the neighborhood, with images of the beach and mountains, and pages with maps showing the integration and roads used to reach the neighborhood. It is the same idea behind the "planned neighborhoods" that became the protagonists of urbanization in the region, the large condominiums that appeared

as “urban islands”, guaranteeing layers of enclosure while integrating them with the services and benefits of the city.

In the years that followed the construction of Elevado do Joá, the promises regarding the neighborhood turned to the other infrastructures that would arrive, now through the newly built bridges and tunnels. “Paved streets, street lighting, and even the telephone” (*Jornal do Brasil*, December 2, 1976, 1st Section, p. 8), “Cetel announced that [...] it will put up for sale another 3,120 residential telephone lines in Barra da Tijuca,” (*ibid.*) “Emílio Ibrahim announces that water for Baixada and Barra is a government priority” (*ibid.*, April 6, 1979, 1st Section, p. 16); and “Energy and the entire light and power network for public and private lighting; an entire water supply system [...] with a large-capacity treatment plant” (*ibid.*, December 8, 1976, 1st Section, p. 5), are some of the promises related to the infrastructures that start to emerge after the Elevado expressway incorporates the neighborhood into the urban fabric of the city and allows the flow of these infrastructures, each full of new promises. The stones and bricks left over from the Elevado work were later used to build roads in Barra da Tijuca, and it became financially feasible for tanker trucks to travel to meet the region’s demand. This grand infrastructure proved to be essential not only for the flow of promises and agents, but for new infrastructures, each of which enabled new flows of promises and agents.

Concluding remarks

Elevado do Joá appears in the history of urban expansion in Rio de Janeiro as a key element to understand the specific process related to the spread by the waterfront toward the Western District. As this assemblage, or the “unstable and noncoherent gatherings of heterogeneous materials, skills, and practices” (Harvey, 2008, p. 84), it incorporates various materials, social dynamics, lives, and promises that support this extension of the urban fabric based on a new lifestyle proposal. A close look at its history and composition helps us understand the “unique experiences of everyday life and [...] expectations of the future” (Appel, Anand and Gupta, 2018, p. 3).

This infrastructural complex comprised of bridges, tunnels, and viaducts sheds light on the past dynamics of the city’s production and on the ideals of the future that seek to establish themselves. As a kind of time machine of the multiverse, it allows us to go back to different pasts while taking us to the future, associating itself with fictional ideals of an ahistorical past, nostalgic memories of an intermediate past, and bad memories of a recent past that remains in the present, but always “toward the future”.

Like infrastructure in general, Elevado do Joá “comprises the architecture for circulation, literally providing the undergirding of modern societies, and generates the environment of

everyday life” (ibid.), but of a specific modern society, which takes place in an attempt to reconcile opposing ideals. As a symbol of separation in the city, the tunnel delimits the before and after, building this “new” at the same time as it seeks to integrate it with the “old”, using its symbolic baggage of prestige. The distant, which by itself would not suffice, becomes integrated. The landscape of untouched forests and exuberant nature is cut by the gray of cement and progress, modernist architecture, and the presence of urban infrastructure. Elevado also stands out as physical evidence of a sequence of events and

social dynamics (Larkin, 2013) that culminated in the spread to Barra da Tijuca.

In this amalgamation of conflicting interdependent promises, Elevado do Joá presents the base for the creation of an unprecedented model of life, driven by real estate capital. The barrense ethos (Lima, 2007), the “city condominiums” (Agueda, 2020), the role of a “global suburb” (Herzog, 2013), and an unprecedented urban form in the city were all built next to Rossi Engenharia’s concrete beams, in this flow of agents, promises, and other infrastructures that, through the Elevado’s asphalt, reached Barra da Tijuca.

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Notes

- (1) The expressions “quiet” and “prestige” are used here as terms that were native of the advertising for developments that emerged from the 1970s onwards.
- (2) For a more in-depth discussion on tranquility in the Western District of Rio de Janeiro, see Araujo and Cortado, 2020.
- (3) Both “Rio de Janeiro hinterland” and “Miami of Rio” are terms the media already used to refer to Barra da Tijuca. The former refers to the period before the Lúcio Costa Plan, when the area was considered basically rural; it was coined by the *Correio da Manhã* newspaper, and became the title of a work by Armando Magalhães Corrêa (1936). The latter, used mainly by the *O Globo* newspaper, refers to the current period of the district, especially in relation to the waterfront and to Jardim Oceânico.
- (4) Native term used by a resident of Barra da Tijuca in an Instagram live broadcast on public safety and Barra da Tijuca.
- (5) This “Rousseauian ahistorical past” would be the one linked not to a specific time frame, but to an idea of a state of nature, without empirical links but, rather, in the abstractions of a pre-civilization society, in a positive sense.

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