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The Social Performance of Nature in Three Brazilian Cities: territorial systems and social innovation in the historical process of visualizing and imagining natural places.

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Biographical note
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Abstract:
This paper aims to explore the social performance of nature, investigating the interplay of nature, subjectivities and visions for the future. The main challenge is to denaturalize our conceptions of nature and to understand science as techniques of phenomena, thus grounding a paradigm for the right to nature as a right to produce nature as a work of design. For that, we will investigate the evolution of the imaginary of urban nature in a regressive-progressive history of urban rivers in the cities of Goias, Goiania and Caldas Novas, thus visualizing the social dimensions in different attitudes, appropriation and future plans for its urban nature. This aims to contribute for building a reflexive and design-thinking approach to nature and unveiling the politics of environmental perception.

1. Introduction

In 1937 the capital of the state of Goiás was transferred from the colonial times city of Goiás to Goiania, a modern city that started to be built in 1933. In 1937, the famous French structural anthropologist Claude Lévi-Strauss visited the region and, in his 1955 book Tristes Tropiques, he gave a staggering first person account of the dynamics he saw between nature and these cities:

> […] the little town of Goyaz […] eked out a sleepy existence some seven hundred miles from the coast, from which it was virtually cut off. It stood among a mass of greenery and was dominated by an erratic skyline of palm-topped hills. Streets of low houses ran down the hillsides green with gardens. […] The colonnades, the use of stucco, the sumptuous porticos freshly painted in white or pink or ochre or blue all reminded me of Spanish country-town baroque. On either side of the river were moss-grown quays that had caved in, here and there, under the weight of the lianas, the banana-trees, and palm-trees that had run wild among the unoccupied properties; but this superabundant vegetation did not so much underline the decrepitude of those properties as add a note of silence and dignity to their dilapidated façades. (Lévi-Strauss, 1961, p. 128)

> With Goiania a greater risk was taken, because the original plan was to build up from nothing at all the future federal capital of Brazil […] there are an enormous plateaux which we have left untouched for the last two hundred years […] they could get on with the enormous undertaking that they had in mind. This was to be found sixty-odd miles to the east, on a plateau where nothing grew but rough grass and thorny shrubs, as if some plague had swept across it and destroyed all living creatures and all other vegetation. […] Its architects, untempted by any natural advantages, could proceed as if on a drawing-board. […] Suddenly every newspaper was full of the

news. The city of Goiania was to be founded: and along with the town-plan, which could not have been more complete if Goiania had been already a hundred years old […]

I visited Goiania in 1937. Among endless flatlands half dead ground, half battlefield with telegraph poles and surveyors stakes all over the place, a hundred or so brand-new houses could be seen at the four corners of the horizon. The biggest of these was the hotel, a square box of cement, with the look of an air-terminus or a miniature fort; one might have called it the bastion of civilization in a literal, and, therefore, a strangely ironical sense. For nothing could be more barbarous, more essentially inhuman, than this way of grabbing at the desert. This graceless erection was the contrary of Goyaz. It had no history. It had neither lived long enough nor acquired any of the associations which might have concealed its emptiness or softened its awkward outlines. One felt as one feels in a station or a hospital: always in transit. Only the fear of some catastrophe could have justified the erection of this square white fortress. And indeed that catastrophe had occurred: silence and stillness served only to heighten its menaces. Cadmus the civilizer had sown the dragon's teeth. The earth had been torn up and burnt away by the dragon's breath: Man would be the next crop. (Lévi-Strauss, 1961, pp. 128-130)

In this account we can see many layers of dialectics between nature, city and different subjectivities. It does not only reefers to a complex dynamic between territory, nature and artificial spaces, but also between different cultures and spirits of times. In a political context of modern dictatorship in Brazil, Lévi-Strauss noticed an emergent instrumental modernist enlightenment. Nonetheless, perhaps what is more staggering is to notice how he approaches with tenderness the 'Spanish country-town baroque' city with its medieval gardens, and on the other hand demonizes the landscape of the Cerrado as a 'desert' of 'half dead ground, half battlefield' 'where nothing grew but rough grass and thorny shrubs'. On the one hand, the old city had a very complex and cultural relationship with nature, as we will try to untangle. On the other hand, the modern subjectivity had an instrumental logic of domination towards nature, making it a *tabula rasa* for massive concrete objects. But, in a third hand, the anthropologist could not show his notable sensibility towards the Cerrado ecosystem itself, a harsh landscape, but rich in its own terms if one has an open eye for it.

On this paper we aim to disentangle how different subjetivities and landscapes were built in these 3 cities silencing this ecosystem. With that we aim to denaturalize the perspectives towards nature, and unveil how cultural aspects guided decisions and structured not only space but also ways of seeing the world. Furthermore, we also aim to explore how scientists, planners and city authorities were seeing and intervening in that dynamics.

Here we will focus on the relation between the cities and its main rivers, and we will use each city to explore one main aspect of that dynamics. In the city of Goiás and the Vermelho River, we will investigate how a landscape that remained essentially frozen for centuries, actually, saw its nature to metamorphose. In the city of Caldas Novas and the Ribeirão de Caldas we will see how ideas of hygiene and health

interplayed a complex game in the valuation of nature, and how a dangerous simulacra of nature points to the need of a new dialectics of artificialization and naturalization. Finally, in Goiânia and the Meia Ponte, we will further explore the aporias of modern instrumental logics, that points to the need of de-alienating the city from nature, and overcoming its expropriation with a process of cultural appropriation. Those points aim to build a critical and political approach to nature as an object of social design.

Michel Serres (1995) asserted, approximately 30 year ago, that we need a new 'natural contract' for society. If Rousseau conceived civilization as a 'social contract', in which people agree in playing different and mutually beneficial roles, Serres argued that, given the ecological emergency we have been facing, we would need a contract that must include nature. This idea has met its recent momentum in the European Green (new) Deal, which set the main goal of making Europe climate neutral by 2050. We need a new view of urban environment: a process of human and non-human performances that work together based on the possibilities machined by our social-environmental systems. In this matter, Milton Santos (1996) argued that nature becomes a second society, as 'nature becomes a real system of objects (...) and ironically, it is the ecological movement itself that completes this process'.

In this paper we aim to explore how social systems and the systems we see in nature interacted in different places, times and cultures. When we see nature as a second society, what does it mean to think about the social performance of environmental planning? Rather than focusing on the establishment of new social-environmental structures, we will investigate social reality as a continuous and complex process constantly changing; thus, approaching plans, social values and actions as moments of 'structuration into social reality' of ideas of 'what nature should be'.

For that, we need to approach the performance of nature by firstly denaturalizing our ideas of nature, and that should be based on the long tradition of denaturalizing our understanding of "things". Some centuries ago, Marx (1990) took important steps towards denaturalizing the idea that a "commodity", revealing how it is not just a thing, but it is full of social relations. Friedrich Nietzsche was another key player in this game and all his effort (to go beyond good and evil, and to 'transvalue' social values trough the genealogy of how moral ideas were built) could be seen as strong efforts to denaturalize all our concepts and to reveal their human aspects. Although in his *The Will to Power* (Nietzsche, 1968, p. 24, 119, 126, 165, 168, 169, 234, 235) – a fragmented and incomplete edition of notes, Nietzsche clearly mentions the question of "denaturalizing" (mainly for morality issues). But, not even he, himself, could take the last radical step; in his own words: 'one cannot "*dénaturer la nature*"' (Nietzsche, 1968, p. 362).

Nonetheless, the classical essay by Judith Butler (1988) aimed at denaturalizing the understanding of our own body, sought to understand gender as performance, or as a socially constructed phenomenology. Helene Shugart (2001) also explored how femininity in women and masculinity in men can be understood as social performance by de-fetishizing their mechanisms based on parody studies. She sees the possibility of denaturalizing the nature of gender and, consequently, of reconstituting desire, by doing so. The interrelation of these fetishizing mechanisms

and what we see as nature is fundamental to depict reification and social desire inside nature's social performance.

In addition, the recent studies by Neil Smith (1998), David Harvey (2000) and Jason Moore (2017) have taken significant steps towards researching the "production of nature" as constitutive part of human relationship with the environment. Nonetheless, these authors remain limited to the idea that nature is a "social construct", an image or representation detached from the "real thing" that lives inside our "re-presentative" minds and culture. Maria Kaika et al. (2020) explored the idea of Urban Political Ecology to show how initial knowledge produced by the environmental sciences have further political consequences to 'the way it is put into practice'.

Marco Armiero (2019) took one step ahead and made the attempt to escape the discipline of the environmental sciences based on a humanist approach to the relationship between nature and society. His research points towards the understanding of nature as a   "project" (i.e. the *poiesis* of nature). This act of projecting can also be understood as the projection of ideas onto the world. In order to further explore these ideas, we shall briefly establish our approach to Nature as Design, and then explore a regressive-progressive analysis of how nature was designed in the dialectics of Goias, Goiania, and Caldas Novas with its rivers.

2. Nature as Design: about systems and phenomena creation

We nowadays take "ecosystems" as synonym of nature, but the two parts of this word have a political aesthetics of their own. Juan Martinez Alier (1988) explored how both economy and ecology are rooted in the Greek word *Oikos*. He showed that the neoclassical economics practices have been corresponding to what Aristotle defined as "*crematistic*" (the study of price formation in the market), and that the broader sense of economics should take into account the meaning of *Oikos* (the space of life), which encompasses family and community life, as well as the territory endowed to it. Ecology is the knowledge about this space of life, whereas economy should be the management and regulation of it. Thus, ecology and economy are ultimately intertwined with the productive dimension of nature.

On the other hand, "systems" are theoretical instruments; Adam Curtis' documentary *All Watched Over by Machines of Loving Grace* charmingly captures how the systems' theory prevail in contemporary culture, mainly through a specific branch of ecological thinking. The 1972 Club of Rome report titled *Limits to Growth* was based on a cybernetic-system model composed of 1,000 equations aimed at helping to view all mankind's issues as an interconnected system. This algorithm of all resources, processes and consumption of the world supposedly reveals the natural limits of our current global social performance.

System are theoretical frameworks, they are a way of seeing reality as a set of interdependent elements, among which one finds a set of dynamic relationships that altogether form the whole. A car, or a frog, can be both seen as a system. By doing so, one has to read and set the parts of reality together. First, it is essential deciding what is the goal of the system, then one must collect empirical data, model mathematical formulas to enable the interaction of the parts with the feedback of the system – which is nowadays, increasingly formed by computer algorithms – as well

as to predict future variations to select the best model, and, finally, to monitor and control the evolution of the assessed variables. Therefore, a system can help understanding how things work together within an interconnecting mechanism and in networks (Oliveira and Portela, 2006; Macedo et all., 2008; Kasper, 2000).

On the developments of truths about nature, Bruno Latour (Latour and Woolgar, 1986) made an anthropological investigation on a famous molecular laboratory by analyzing how abstractions would acquire life when they were reified into technical apparatuses. According to him, when a scientist uses an apparatus to observe phenomena, what he sees on the other side of the apparatus is framed by past theories and hypothesis. This theories were discussed in papers and conferences and were used to produce these apparatuses, i.e. 'black boxes'. Thus, he argues: (1) the phenomena these scientists see exists only through the mediation of that machine, and (2) the machine only existed through theories reified in it (i.e. past social labour inscribed in this material basis).

Accordingly, Bruno Latour explains these lab 'black boxes' by using Bachelard's idea that scientific equipments are 'reified theories': 'When another member handles the NMR spectrometer (…) to check the purity of his compounds, he is using spin theory and the outcome of some twenty years of basic physics research' (Latour and Woolgar, 1986, p. 66). These ideas inscribed and configured in machines were based on arguments and theories that have resulted from discussions in conferences and from disputes in journals and articles, before they were finally accepted as 'facts'. Thus, the 'so-called material elements of the laboratory are based upon the reified outcomes of past controversies' (Latour and Woolgar, 1986, p. 87).

That means the phenomena observed as scientific truths were produced by techniques and theories firstly inscribed in the apparatuses, i.e. techniques creating phenomena. Thus, we can investigate these phenomenon techniques to open the mechanisms of urban and environmental planning for action. We can think of urban and environmental plans as black boxes of both past and contemporary controversies. The culture of environmental planning is a long scientific tradition triggered by many assumptions about elements that matter when we regulate and produce cities.

For that, we will investigate the relationship between cities and rivers in the three cities as if it was a work of regional design. This is an experimental tool aimed to explore the principles that structures those realities. It is inspired by the retroactive manifestos of Rem Koolhaas (1994), such as the one he developed to Manhattan as if it was conceived by an architect, or how he investigated the walls of Berlin as a work of intentional design. In this sense, using Grounded Theory (Guest et alli, 2011; Glaser & Strauss, 1967) we coded the main aspects of the relationship of those cities to nature, exploring how these relations were designing nature in three aspects: by revealing and visualizing hidden and supposed properties; by imagining and conceiving future scenarios (design-thinking and imagination); and by refunding and articulating virtual seeds for future shared social realities (i.e. creativity and social innovations).

3. Metamorphose of a *Natura Morta*: the Dialectics of Subjectivities and Nature

A Unesco's World Heritage Site, the city of Goiás, in the very heart of Brazil, started to be built around 300 years ago; it clearly shows how nature has performed different social roles over the years. The city was nearly abandoned for decades keeping its landscape frozen, and that was later reinforced by the protection of a heritage status. Thus, we could argue that the city was frozen as a *Natura Morta* picture, keeping its natural elements passively still, open only to the imagination and the gaze of its observers. Nonetheless, this still life painting kept metamorphosing, changing from inside out, without changing any of its superficial aspects.

When Thomas Ender depicted a packed set of houses and four streets in the middle of a wild natural landscape of dramatic mountains and exotic trees, approximately 200 years ago, Vermelho River did not even participate in this landscape. Nonetheless, the river was the main economic resource of the city, since it was used for gold mining. Furthermore, there was no place for nature in the Portuguese colonial urban space. Cities were, actually, anthropocentric and in opposition to the wildness, which was to be conquered during the Brazilian colonization process. Brazilian cities, at that time, had no trees on the streets and no green spaces on their main squares. Officials in one of these municipalities have even argued that:

> Trees are pumps that put air into the soil and retain its moisture, but, while this moisture is useful, leaves that rot on the ground make them all more harmful, as it is certain that when they rot they carry impure exhalations into the air. That is the reason why naturalist Philosophers claim the woods are constantly harmful to health. [our translation] (apud Pereira, 1999)

As far as we can believe in the political rhetoric from colonial times, it is amazing to see how daily practices were connected to the political discourse and with science, if we take the 'naturalist philosophers claim' as nowadays counterpart to current scientific theories. Furthermore, this statement evidences how landscape is interconnected with politics, daily practices and institutions through discourse. However, the big picture is not that simple.

If we turn our sight from the public space to urban landscape, as a whole, including the private realm, we will find that the city was meshed with green patches. Houses in Goiás had big backyards that account for an additional, and very specific, articulation of nature. Yi-fu-Tuan (1984) argues that in the Christian tradition, humans had the sanctifying power of being the "vice-regent" of God at Earth. Although this power is expected to be found in transcendence, humans are actually imperfect and sinful, so divine will must be contemplated in nature, where it is up to man to impose the divine will to the wilderness by sanctifying it. As such, these backyards create a series of enclosed gardens that mimic the harmony of the Gardens of Eden. When Christians were isolated in a hostile world, they would endow nature only if it had this divine order.

Here, the natural elements can be understood as "artifacts", once they also were symbols of "spiritual truth". Such a truth was not a simple adaptation to each place, nor an organization of nature's local forces, but the instrumental control of these spaces by the reinforcement of the Church truths. In other words, these intimate

landscapes formed a coordinated picture of a harmonic nature. This symbiotic interaction had no place in the catholic city of Goiás; the separation of the enclosed from the wild nature is also the separation of the sacred from the profane. Here, truth is transcendent, and it is only achievable through God, and humans must purify nature by making it holy in order to contemplate the divine will inherent to it, its potential, rather than its actual profile.

Surprisingly enough, it is astonishing that in 1803 another depiction of the city of Goiás[1] showed two rows of threes in the main square, and two more rows of them recently planted in the way to a chapel. This shift in the local landscape actually highlighted a shift in the global geopolitical landscape. As the English Empire advanced its economic power, it also spread its cultural subjectivity, and the English Garden style emerged all around Brazil; not only in the coastal cosmopolitan cities, but also in the hinterlands. The space of the city became a white canvas for picturesque interventions, changing the value of nature. Nature became, altogether, profane.

Nature, even inside the cities, became a way of countering the excessive urbanization of a new industrial era that was being born. It become a refuge from the harmful rotting exhalations of modern cities, now drawing a new picturesque compositions in contrast to rational, formal and symmetrical shapes of Renascence and Baroque. Nevertheless, it also brought along some changes in costumes. In Brazil's colonial and slavery society, public spaces were not to be enjoyed – civic life happened indoors, whereas outdoor spaces were reserved for slaves and vagabonds. By constrast, this new picturesque landscapes of the English Empire had to be delighted by experience, by people gathering in public spaces and by wonders about their variations and sublime compositions.

This new nature inserted in the urban landscape played the complex social role of interacting with both social practices and mind sets. According to Maria Faggin Leite (1986), although the Brazilian 19th century Romantic landscape acknowledged that beauty was also present in wild landscapes, rather than just in the domesticated ones, such acknowledgement was observed in a very particular way, namely: by valuing nature as antithesis to cities. As Jellicoe (1995) asserted, it was the desire to escape the oppressive rationalism featuring the 18th century metropolises. It was also the consequence of the repudiation to England's industrial environment, its high pollution, environmental degradation and urban density levels. Therefore, in paradox, the value given to nature had nothing to do with its full experience.

Actually, these apparently natural landscapes were carefully-built ambiances that played key role in modern society. Uredale Price's 1794 "Essay on The Pictouresque" boosted this approach by arguing against "monotony" and "stereotyped artifices". He believed that emotions came from both sudden changes and extreme variations, so that the whole composition of the landscape was carefully built to create a sense of sublime: the feeling of reaching an untouchable, impenetrable or unaccountable beauty. These landscapes seemed to be untouched by man, but they were carefully-drawn pictures of nature.

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1 First published in Reis, 2000.

Moreover, it is astonishing to see how these artifices hidden inside the pictures of nature played a role at the birth of capitalism. As described in the first part of the *Utopia* by Thomas Morus, in the last chapter of *Das Kapital* by Karl Marx, or in the play *The Cheviot, the Stag and the Black, Black Oil* by John McGrath, the enclosure of the common land in the United Kingdom triggered the creation not only of the private property of nature and a new set of capitalist relationships between humans and nature. But it also recreated the UK's landscape into a beautiful picturesque scenario – for the bourgeoisie – based on the bloody expulsion of the poor population from it. The large-scale interventions in the landscape, and the carefully-arranged natural elements, lawns, sheep and deer in sublime compositions, were only possible because of this primitive expropriation. The common land and its way of living were disrupted, large fortunes rose and the scene for the bourgeois delight of nature was built.

According to Rabelo (1997), we can also observe the change from the colonial mind set to the new subjectivity resulting from the hegemony of the British Empire, in Goiás. The shift towards the capitalist mindset will derive from two main processes: the hygiene and moral discourses. On the one hand, the technical discourse based on the medical science influenced the way natural spaces of the cities should be dealt with. City councils discussed sanitation issues, the relocation of market places and the construction of slaughterhouses. On the other hand, new social behaviors were introduced towards the city and the natural resources. Although slavery was set to an end, labor remained a degrading task for the general population. As such, new free men enjoyed idleness and begging, which was an activity treated with compassion by Christians. According to Rabelo (1997), hunting became a means of survival and these men also bathed naked in the rivers. For introducing a new capitalist social order, a series of decrees and bills criminalized these behaviors and reinforced new forms of labor. The aesthetic contemplation of this new sublime nature could not be experienced as a non-capitalist way of living into the wild. It came alongside with new forms of labour and accepted moralities.

As time went by, Britto (2014) analyzed how in recent decades the river became part of both the urban imaginary and the daily habits of the city expressed by local artists and poets. According to these artists, thinking about the sonority of the city was to talk about water flow in Vermelho River. Laundresses became one of the most popular expressions of the working people in the city, they were a mix of tradition and daily struggles. The river was also a major character in many poems by Cora Coralina, who was the most prominent poet in the city. It was used as epigraph in a sentence of fellow writer José Mendonça Teles, who represented this new symbiosis among the city, the river and subjectivity with the sentence 'there is a river inside me'.

Not by coincidence, in 1999 the city hosted the first International Environmental Film and Video Festival (FICA), which became one of the biggest environmental movie festivals in the world. This annual event reinforced the role played by nature in the city by bringing contemporary culture to the very heart of local society. The festival, as a counterpart of an annual religious (meta)ritual, reinforced now the abstract and scientific values of nature (as ecology) in the city subjectivity. That was a great shift underway in how we relate to nature is underway.

Milton Santos (1996), asserted that traditional communities, or what he called 'slow people', had a very tight relationship with the place that was carefully built by tradition and culture over long time, as well as reinforced by daily rituals. These people had a long-lasting and collective connection to the place; they could read all the city's rich symbolic structure in a distracted way. By contrast, modern 'fast people' relate to the place mediated by knowledge. The steep social and cultural continuous changes do not allow long-term symbols to operate inside these modern subjectivities. The place is just a confirmation of what people already know about it within a techno-science society. Nature is valued by the acknowledgement of our ecological crisis and rivers are valued by their ecosystem services and sustainable principles shared by contemporary knowledge. Therefore, the 'patrimonialization' of the city, and the Environmental Festival, are just parts of these abstract mechanisms shaping new experiences in this place.

As we have demonstrated so far, even this still life landscape was, under its frozen appearances, suffering a process of continuous (meta)morphose, integrating social aspects, subjectivities and nature. It was not simply that values towards nature changed, nature itself came to be completely different things. From a wilderness to be opposed by anthropocentric urban space, patched by contemplating divine gardens of Eden, to a picturesque landscape of capitalist, urban and bourgeois pleasures and alienations, to a contemporary landscape of ecological systems mediated by knowledge, we have seen multiple natures residing inside one only river.

Accordingly, we should now talk about 'the right to nature', rather then simply the right to the city. Henri Lefebvre (2003) defined his concept of "the right to the city" based on factors that go beyond the simple access to urban consumption and services. He started from the relationship between *polis* and the Greek philosophy, according to which, Philosophy founded the basis for the polis. Lefebvre proposed an urban condition of diversity and multiplicity, whose meta-philosophy would provide the basis for a new relationship with the city as artwork. If we take on account our main contemporary paradox – the conflict between environmental collapse and social performance of nature and the incomplete social awareness of the magnitude of the challenge – we will need a similar meta-philosophical approach towards nature, i.e. to see nature as a work of design.

4. Inside-out Natural Aporias: Unfoldings Towards a New Right to Nature

The city space was for long considered a "dead" space or a space opposite to the rural space, where nature remained as the dominating factor. Natural spaces inside the cities were discussed as 'spaces to be preserved', since they were conceived in opposition to, and distinct from, anthropological spaces. Under the contemporary condition of global urbanization, where the boundaries of human space and the natural environment are diluted in, and expanded to, the whole Earth, we argue that this is a wrong way of formulating the problem of nature and the city.

Thus, for exploring the metamorphose of nature further we will investigate the intertwine between the social and natural systems by exploring briefly two other contemporary examples. In the city of Caldas Novas, the river Ribeirão de Caldas can help highlighting how the borders of natural and artificial are complex and intertwined. In the City of Goiânia and the Meia Ponte River we want to further

explore the modern instrumental relation with nature, and how different forms of knowledge establishes different relations to nature. And we want to explore how in contemporary society we can conceive and overcome expropriation and alienation paradigm towards an appropriation and collaborative approach to nature.

The Ribeirão de Caldas is a river with thermal waters in the city of Caldas Novas, that today has one of the biggest hotel networks in Brazil, receiving over 3 million visitors a year. This story started when a state governor in the early 1800s claimed to have been cured from a disease with its waters, starting a national campaign to promote the city. In that early beginning, a first paradox emerged: while its waters were seen by outsiders as a place for cure, local community fought against the presence of these visitors, as they were bringing new diseases to its waters. Thus, a same natural element was seen as a way of cure and a cause of new diseases.

Furthermore, after the 1960's the city started to increasingly change the focus from health treatments to theme park resorts of thermal water. This process continued to build a segregated city, one for the tourists and other for the locals. In this new dynamics the city resorts recreated the local nature into disneyfied simulacras of nature, with artificial mountains, artificial waterfalls and fake historical elements. These simulacra of nature act as creators of realities that poorly copy the original. These phenomena, allied to the construction of market scenarios, are consistent with a system of mass consumption, based on the continuous production of lack and frustration. Thus, the experience of nature here becomes a fetishising device, which acts producing a consumers' subjectivation. Thus, this disneyfication of the city and its nature creates an ephemeral mold detached from the actual place, transforming its identity into a commodity. The resulting urban experience is of a programmed consumption of place, the nature as a simulated commodity to be consumed and disposed.

In this context, the Public Prosecutor and the Association of Miners of Thermal Waters of Goiás (AMAT) agreed to develop an environmental compensation plan for the City of Caldas Novas. Its touristic activities were built along the thermal river of the city and had strong environmental impact on the environment. Consequently, a plan for revitalizing the urban river valleys in the city was developed by Architecture professors at Pontifical Catholic University of Goiás and at Federal University of Goiás (including the author of this manuscript).

In the revitalization plan for the Ribeirão de Caldas, the proposed aims to build a new interface between the city and the natural environment. Therefore, the natural and urban spaces were not conceived as separated from, and incompatible to, each other. Actually, the overall strategy was to take the city to the river's protected areas and to bring nature to the city. This proposal resulted in the reconfiguration of the traditional institutional context of planning in the city. This synthesis developed a new dynamic framework that directly interfered in the sense of place and in citizens' appropriation of the city.

Arguably, the city has a major challenge to overcome the spatial segregation between locals and tourists, and to overcome the commodification of the city through simulacra. For that one should not deny the intertwine of artificiality and naturality. On the contrary, we should explore the politics behind this intertwining, and open its

black boxes in order to intervene on it. For that we need to overcome the abyssal separation of nature and artificial. Bruno Latour (2004) has made great theoretical advancements in assessing nature and artificial relationships by taking into consideration that things are natural and artificial hybrids. Thus, he considered scientists as political representatives of nature (i.e. spokesmen of the interests of non-humans), but he failed to further develop this theory to understand its dialectics with social subjectivities.

If we take into account the complex relationship between subjects and their environment, the whole environment can be understood as a set of systems that were partially projected onto reality. Simondon (2013) calls pre-individuality (what comes before the operation of individuation) this field of partially actualized and potential elements that exists in the environment before the indivituation of the individual. Thus, nature can be seen as past subjectivities that were materialized in our social and natural performance, i.e., in our daily experience of nature. What we can learn of this example is that we can take three steps ahead to picture nature as part of our human and urban daily experiences, namely: seeing nature as a dialectical mirror room; seeing nature within us; and seeing the diverging nature inside ourselves.

Natural Mirrors: In the classic *The Metropolis and Mental Life,* Georg Simmel (1950) explored how the modern metropolis creates new forms of personal behavior and environmental experience. The step forward in a new paradigm yet to be built (of nature as design) we should try to envision how our political aesthetics of nature can reproduce social behaviors and experiences by addressing how our ideas of nature have a material social performance.

Within Nature: Neil Theise and Menas Kafatos (2013, 2016) explored the intertwining of inner and outer sentience and the imbricated relationships of the universe as a self-organizing system. They pointed out the remarkable truth that less than 1% of our cells are human. If we take a closer (very closer) look at our frontier with the world, we will see a microbial flora living in synergistic mutualism with us (this phenomenon is also actually indispensable for the health of our gut's functioning, i.e. the intestinal flora). Humans are an ecosystem, themselves.

Diverging Nature: Nature is inside us; nonetheless, we diverge from it in many cultural and creative ways. Timothy Taylor (2010), who is an anthropological archaeologist, argued that artificiality is changing humans not only in modern times, but, also since the very beginning of our species. This statement can be supported by the fact that evidences for the first stone tool dates back to 190,000 years before the evidence for the first specimen belonging to genus *Homo*. The same goes for the control of fire dating about 1 million years before *homo sapiens* (and many of his peculiar traits such as week teeth, lack of fur, short guts, among others). All these tools pointed towards a protein-rich and processed-food diet, allowing to the evolution to bigger brains. In other words, culture (in all its forms such as technological or gastronomic) changed our very nature; therefore, according to Taylor, there are no natural humans; we are 'artificial apes'. And we could add, the reified elements of our whole environment dynamically interact with our possible social performances.

In the case of Goiânia and its Meia Ponte River, the problem starts with overcoming the instrumental logic of a colonial mentality towards nature. As we saw, Claude Lévi-Strauss was very incisive in critiquing the instrumental logic of the first settlement. But, not even him was able to overcome the prejudices of a colonial mentality that saw the Cerrado landscape as a 'desert' of 'half dead ground, half battlefield' 'where nothing grew but rough grass and thorny shrubs'.

As the modern city conceive in the early 1930s, the project had an instrumental approach to nature. A dam was built on the river, so it could become a lake for producing energy, an airport for seaplanes and a place for human leisure. Its surrounding green area was conceived as a Botanical Garden, almost in the sense of a catholic Garden of Eden, but now mediated by scientific knowledge. The rivers of the city were to become Parkways, just as it was in fashion at Mose's New York, where the experience of nature was mediated by the car's machinic way of fruition. Thus, in the City of Goiânia and the Meia Ponte River the relation with nature was mediated by a modern instrumental logic.

This form of knowledge established a linear alienation from nature, where human needs were imposed to nature. Later, a new environmental legislation would stablish an abyssal line between natural preservation and human activities. The result was that the natural areas of the city remained abandoned for decades. Neither the imposed uses nor the strict division worked out. Arguably, an approach that counts on the dialectics of nature and artificiality could solve those aporias.

In this context, a series of workshops organized by UFG's Studio Unit 'Pr7' in partnership with the municipal environmental agency developed a diagnosis of the social-natural conflicts of the river. It concluded that it was impossible to develop a single project to solve all the issues concerning the river (namely: environmental degradation, exotic vegetation, vacant and abandoned areas, occupation by favelas, and the fact that virtually all the pollution of all rivers of the city flow into the Meia Ponte). The problem of the river is the problem of a whole unsustainable city and basin development. In order to save the river, one sould change the whole city. Thus, when students were asked to develop Utopias for the river, they turned out to develop dystopias: it is easier to imagine the collapse of society than to imagine any alternative to current scenarios.

At that point, the students developed the proposal of creating an Open-Source Platform of Design aimed at raising awareness and building collaborative environmental alternatives. So, the design solution was to create a collective-design NGO in an online platform. It developed the proposal of using a collaborative and collective design methods, according to which the group of 30 students would work collaboratively to develop a single project. In this sense, the social-natural dilemma of our times is also the problem of the aesthetics of city and nature. Any solution for the Meia Ponte River should deal with the *copoiesis* of *Urbis* and nature, in a continuous redesign of nature.

According to Herbert Marcuse (1981), the aesthetic dimension is the way through which mankind can escape and transform reality. Therefore, thinking about the contemporary aesthetics of the nature and the city is also rethinking the idea of the utopian city. As for Marcuse, thinking about the world in an aesthetically way is

promoting a radical transformation in the reality we live in (a negative dialectic of our corrupted existence) by constructing and viewing other possible worlds. This role of reinventing, transforming and revolutionizing is understood by Marcuse as the main function of art. Perhaps, the same is true for the paradigm of nature as a work of design.

5. Final Considerations

As we investigated the evolution of the imaginary of urban nature in a regressive-progressive history of urban rivers in the cities of Goias, Goiania and Caldas Novas, we were able to visualize the social dimensions in different attitudes, appropriations and future plans for its urban nature. With that we could point out to the need of building a reflexive design-thinking approach to nature. That suposes to overcome the ideas of a new natural contract or a new green deal, we need to thing a Right to Nature as the right to deal with nature as a work of design.

For that, we will need to deal with the contemporary subjective relationship between humans and nature, where our estrangement from nature creates an unsettling feeling. We are still thinking through an absolute division line between both the artificial and natural worlds. On the one hand, we have artificial things and, on the other hand, the natural things; humans, on the one hand, and animals, on the other hand; the city, on the one hand, and the environment, on the other hand; or, yet, as Kant has put it, we have "thing-in-itself" on the one hand, and reason, on the other hand. Alternatively, we can think of a dynamic dialectic of artificiality and nature. Similar to fair interactive Mirror Room, there can be interchangeability of positions, dissolution of the self in the environment and the complex configuration of the environment as a series of interactive reflections.

As we have seen in our object of discussion, nature has played different mechanic roles in the ordinance of social behavior; our awareness of nature is a complex and collective social construct, a second society, itself (to repeat Milton Santos' argument). New paradigms, such as Ecosystemic Services and the complex multidimensionality of the ecological crisis, set different relationships between man and the world, and we can barely know all intricated elements of the image of nature we have built. We are detached from the very images we build of our reality.

As we investigated the social performance of different natures, we regressively dug into the different social dynamics played by our ideas of nature. These ideas did not simply represent nature in a different way, they also created different ideas of ourselves, set us in different places in the world, and established different performances we could have to interact with nature. Thus, ideas of nature bring along different blind fields and virtual potentials. As our society becomes increasingly complex, nature becomes a complex set of social systems.

It is not the case that systems are simply bad representation of nature, they might be actually the best tools we have so far to represent nature. Nonetheless, different system theories also have different potentials and blind fields. Thus, the bigger picture we tried to depict is that nature is paradoxically a 'natural artefact' with three distinctive dimensions: we are within nature, we diverge from nature and nature is a sort of mirror room for ourselves.

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