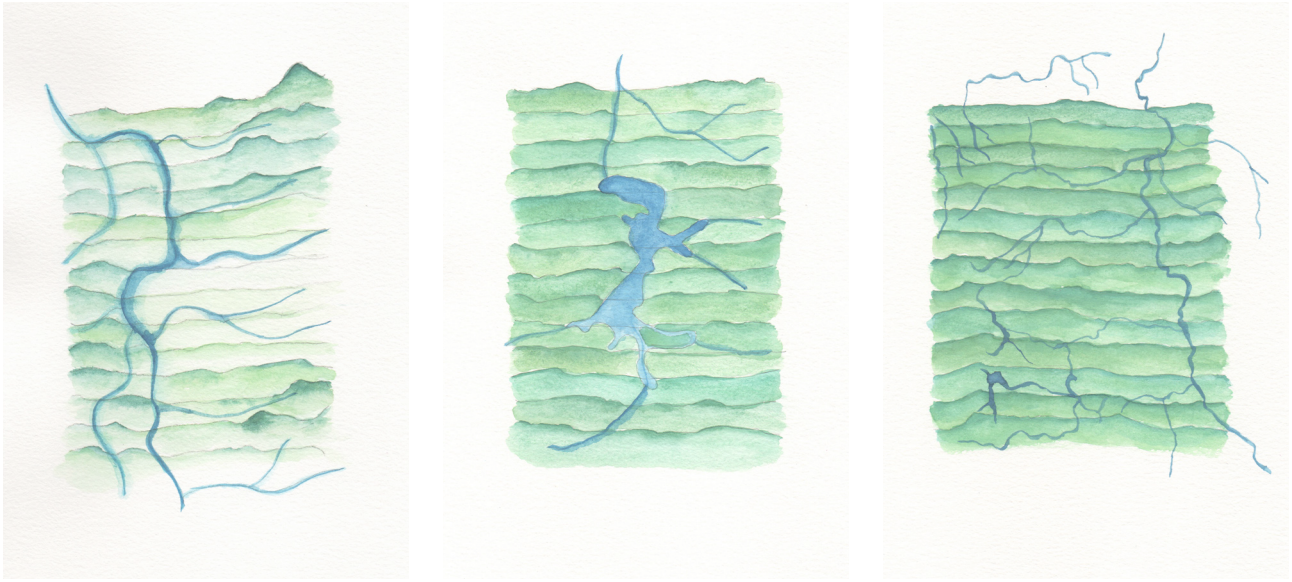
KU LEUVEN
ARENBERG DOCTORAL SCHOOL
Faculty of Engineering Science

UFMG
Programa de Pós-graduação em Arquitetura e Urbanismo
Escola de Arquitetura, Universidade Federal de Minas Gerais

Belo Horizonte

A Spatial Narrative in Three Episodes



Patrícia Capanema Álvares Fernandes

Dissertation presented in partial
fulfillment of the requirements for the
degree of Doctor in Engineering Sciences:
(Ph.D.) Architecture

Tese apresentada ao Programa de Pós-graduação em
Arquitetura e Urbanismo da Escola de Arquitetura
da Universidade Federal de Minas Gerais, como
requisito parcial à obtenção de título de Doutora em
Arquitetura e Urbanismo

Supervisors:

Prof. Viviana d'Auria
Prof. Jupira Gomes de Mendonça
Prof. Bruno de Meulder

June 2019
Junho 2019

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Uitgegeven in eigen beheer, Patrícia Capanema Álvares Fernandes, Brazil

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FICHA CATALOGRÁFICA

F363b

Fernandes, Patricia Capanema Alvares.
Belo Horizonte [manuscrito] : a spatial narrative in three episodes / Patricia Capanema Alvares Fernandes. - 2019.
340f. : il.

Orientador: Jupira Gomes de Mendonça, Viviana d' Auria.
Coorientador: Bruno de Meulder.

Tese (doutorado)– Universidade Federal de Minas Gerais, Escola de Arquitetura.

1. Cidades e vilas - Historiografia - Teses. 2. Planejamento urbano Teses. 3. Urbanização - Teses. 4. Cartografia - Teses. 5. Brasil - Teses. 6. Belo Horizonte (MG) - Teses. I. Mendonça, Jupira Gomes de. II. d' Auria, Viviana. III. Meulder, Bruno de. IV. Universidade Federal de Minas Gerais. Escola de Arquitetura. V. Título.

CDD 711.40981511

Ficha catalográfica: Biblioteca Raffaello Berti, Escola de Arquitetura/UFMG.

Dissertation presented to the Programa de Pós-Graduação em Arquitetura e Urbanismo / NPGAU of the Escola de Arquitetura da Universidade Federal de Minas Gerais and the Faculty of Engineering Science of KU LEUVEN, and approved on 9th May of 2019 by the Examination Committee.

Tese defendida junto ao Programa de Pós-graduação em Arquitetura e Urbanismo/ NPGAU da Escola de Arquitetura da Universidade Federal de Minas Gerais e à Faculty of Engineering Science da KU LEUVEN, e aprovada em 9 de maio de 2019 pela Comissão Examinadora:

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Acknowlegements

Writing a PhD thesis requires looking back at four years of research and a whole life of experience and observation. Equally, it requires looking back and recognizing the value of having people there to support you throughout the journey. Many people have contributed to this research, engaged directly through precious knowledge exchange or indirectly through informal conversations about my favorite conversation topic in the last years: Belo Horizonte's history. Friends and family have, at times unknowingly, contributed immensely by making the journey a more pleasant one. Without them it would have been an unbearable task. Although this short text cannot make justice to everyone's contribution, some names deserve to be mentioned.

I owe special acknowledgements to my supervisors Viviana d'Auria, Jupira Mendonça and Bruno de Meulder for their support, thrust and the knowledge exchanged.

To the professors at UFMG Rita Velloso, Marcelo Maia and Fernanda Borges for building bridges and giving essential insights for the research.

To the friends in Leuven Margarita, Cecilia, Monica and Paulina with whom I have shared much more than an office space, but valuable moments together, as friends and as critical research reviewers.

To Carolina and Eliana, who have been my family in Belgium. A simply 'thank you' will never be enough for acknowledging Eliana's contribution in being a constant source of inspiration, encouragement, knowledge, for reading my texts with a critical eye, for introducing me to Leuven, for being a friend and confident.

To Rodrigo Marcandier and Danilo Botelho for being my 'digital archives' of data, maps and whatever information, especially for Danilo, as a shared curiosity on the history of Belo Horizonte has development in friendship and partnership.

To friends and family, I thank you for the companionship, support and comprehension in my absences. To my father, for his unconditional love and support. To my mother, who besides loving and supporting has participated actively by sharing a passion for architecture, cities and history. To my sister, for being my greatest supporter, always with loving and encouraging words, for taking such good care of me with her very big heart.

Finally, to Thiago for giving me love and laughter even in my worse moments, for enduring the long distances with such good humor, for making my path lighter and happier. For giving me much more than I can here express.

Resumo

A tese apresenta uma história episódica da urbanização em Belo Horizonte, com foco em práticas, processos, projetos e procedimentos que resultaram em importantes transformações espaciais no território expandido desta cidade. Três episódios importantes que desencadearam períodos de mudanças críticas na história urbana desta cidade foram selecionados: a fundação da cidade (1897), a inauguração da Pampulha, sua primeira cidade satélite (1943) e os recentes desenvolvimentos urbanos em Nova Lima, seu município vizinho (a partir da década de 1950).

Apesar dos episódios apresentarem momentos, motivações e resultados espaciais bem distintos, os mesmos são analisados comparativamente, em busca de semelhanças ainda desconhecidas ao invés de evidentes diferenças. A hipótese da tese é que quaisquer que sejam os planos e ideologias aplicados, padrões comuns podem ser encontrados ao se observar, através dos episódios, uma longa história da urbanização. Alguns são: dramáticas manipulações do solo, infra estruturação pelas mãos do Estado, legislação urbana, alinhamentos do público-privado, que conduzem várias formas de segregação sócio-espacial. Através da análise dos casos, a tese expõe quais são as lógicas que operam planos e outros discursos e quais são os modus operandi da construção cotidiana da cidade em Belo Horizonte.

A partir de uma reflexão sobre os padrões históricos de urbanização na região, a tese constrói lentes interpretativas específicas para a interpretação dos episódios. O conceito de paisagem permite explicar processos de transformação espacial em amplos territórios ao incluir temas como ecologia, mineração e agricultura à questão urbana. A noção de constelação permite revelar uma assemblage, ou montagem, de ações e instrumentos que impactam o espaço ao mesmo tempo em que aborda as práticas e o espaço de maneira relacional. O foco em investimentos revela mais diretamente as práticas transformadoras do espaço e os esforços empregados na sua urbanização.

Com o objetivo de diversificar as fontes da história urbana, o método cartográfico foi explorado duplamente: como uma ferramenta investigativa e como um método para produzir uma narrativa visual de uma história do espaço.

Palavras chave: história urbana, urbanismo, cartografia, Belo Horizonte, Brasil

Abstract

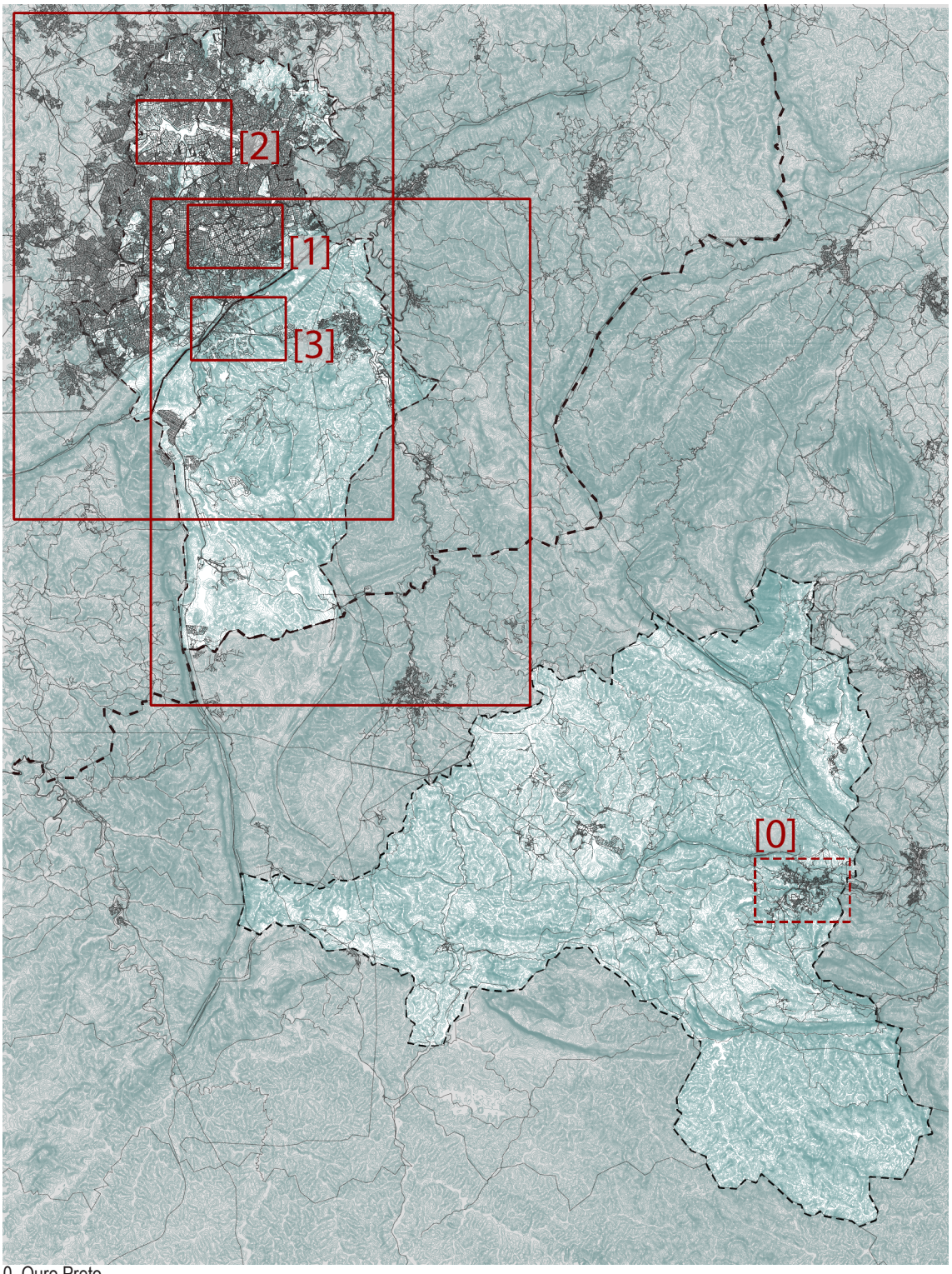
The thesis presents an episodic history of Belo Horizonte's urbanization, focusing on practices, processes, projects and procedures which resulted in important spatial transformations in the city's expanded territory. Three key episodes that have triggered critical shifting moments in its urban history have been selected: the foundation of the city (1897), the inauguration of Pampulha, its first satellite city (1943) and recent urban developments in Nova Lima, its neighboring municipality (from the 1950s onwards).

Despite the different moments, motivations and spatial results seen in each episode, they are analyzed comparatively looking for hidden similarities rather than evident differences. The thesis hypothesis is that whatever the plans and ideologies at stake, some common patterns can be found while looking at a longer history of urbanization, across episodes. Some of them are: dramatic ground manipulations, state infrastructuring, urban legislation, public-private alignments, conductive to several forms of socio-spatial urban segregation. Through the examination of the cases, the thesis exposes which are the operative logics hidden behind (state) plans and other discourses and, which are the modus operandi of every-day city building in Belo Horizonte.

Reflecting on historical patterns of urbanization in the region, the thesis constructed specific interpretative lenses through which to analyze the episodes. Landscape allows explaining processes of spatial transformation by embracing themes such as ecology, mining and agriculture to the urban question. The notion of constellation allows revealing the assemblage of actions and instruments with an impact on space while also looking at practices and space in a relational way. A focus on investments reveals more directly the practices used for transforming spaces.

In order to diversify the sources of urban history, the cartographic method has been explored both as an investigative tool and as a method for producing a visual narrative of a spatial history.

Key words: urban history, urbanismo, cartography, Belo Horizonte, Brazil



0. Ouro Preto
1. Belo Horizonte's foundation
2. Pampulha
3. Nova Lima

1:500.000

Image 01: Location of the episodes contemplated in the thesis and frames of analysis and mapping.
Source: by author, 2019

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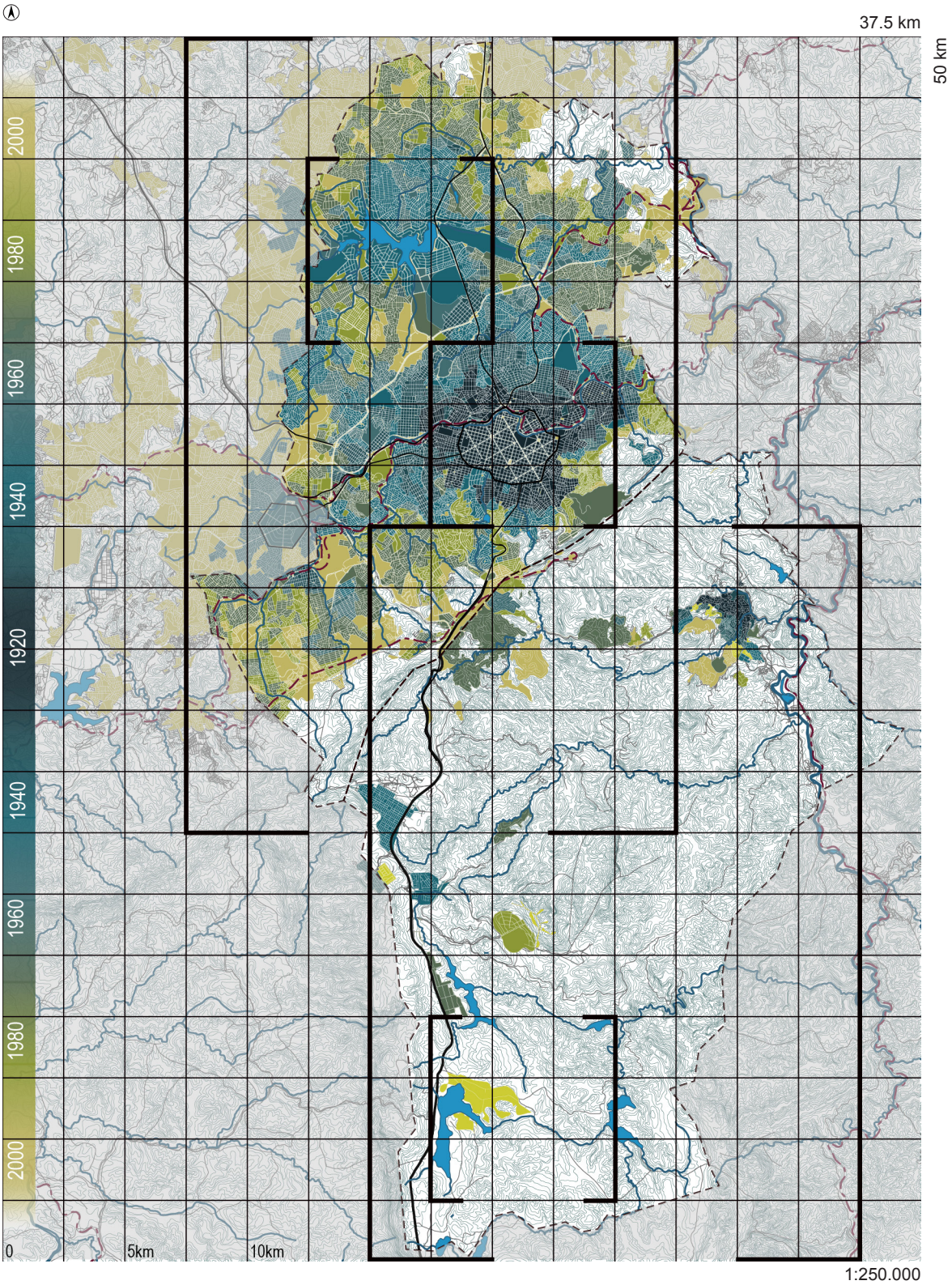
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37.5 km
50 km
2000
1980
1960
1940
1920
1940
1960
1980
2000
0
5km
10km
1:250.000

Introduction

Presentation: a research between Belgium and Brazil

This PhD project began with an interest in urban form and urban formation processes in Brazil, in particular, the effects of urban planning on one side and the existing gaps between planning and building the city on the other[1]. When choosing an object for case-study Belo Horizonte seemed like an obvious choice. It was the city in which I was born in, grew up, studied and lived continuously until I was twenty-five. Family stories tell that my great-grandmother moved to Belo Horizonte at the age of four, shortly after the city had been inaugurated. Having roots deeply grounded in this city, it was surely the place I knew most and could confidently speak about – so I thought. Conducting the research from Belgium made my decision move beyond sentimentality towards practicality. I was able to dig through Belo Horizonte's archives and libraries even from across the ocean, thanks to the availability and excellent management of digital archives of the Arquivo Público Mineiro, contact people I already knew and virtually re-visit places I had already been. Not only that, Belo Horizonte is an exceptional case in Brazil, having been conceived, planned and built by the state at the turn of the nineteenth century, fifty years before Brasilia. This makes it therefore an interesting case in itself for a urban studies research. Today it is the centre of a metropolitan region of almost six million inhabitants, having a built area that goes way beyond its foundational plan. As my great-grandmother, many others also moved to Belo Horizonte from all parts of the state and the country and started to form a brand new 'breed' of *'belohorizontinos'*[2]. This means that although being today a large city, many untold histories of the young Belo Horizonte might be still highly reachable and accountable since they happened along only four generations. As such, it seemed like the perfect site for my research ambitions, concerned initially with the spatial outcomes of urbanistic paradigms and their implementation.

That being decided, as I started to revisit the bibliography on Belo Horizonte, the incessant repetition of particular statements concerning its foundation called my attention, especially when contrasted to the

<
Image 02: Timeline of Belo Horizonte and Nova Lima urban development.

Source: by author, 2019. Data from Prodabel, APM, Pires, 2003.

historical data found at the public archives. Somehow, the historiography of Belo Horizonte has reached an almost unanimous consensus about the positivist influences and inspirations on European and North-American urban models for the conceptualization of its foundational plan (1895). In consequence, repetitive criticisms are directed towards this plan, at times considered as a failed copy of foreign previous initiatives, and in other moments as elitist endeavour. Departing from the image of the plan (Image 21)- an orthogonal grid, traversed by diagonals - I decided to shift the focus from the spatial character of the project itself to the circumstances in which it was created and implemented (or not), the social relations underlined by it, the multiple layers of written and unwritten laws created and enacted either at its origins or, later, superimposed over it. From this moment onward, the picture became quite different than the crystallized consensual version of its history and memory. More broadly, I began to acknowledge how much the recurrent interpretation understands and explains Brazilian urbanism as distorted copies of supposedly global models coming from the "centre". Morever, that this common sense has overshadowed the multiple particularities of the local, creating many of what Boaventura Sousa Santos has called non-existences[3]. From that moment, the research was dominated by a desire to uncover this hidden logic and realities, usually surpassed by consolidated images of plans and dominant ideologies.

With this short personal statement, I emphasize the locus of enunciation of this research. It has been conducted between Belgium and Brazil, in partnership between KU Leuven and Universidade Federal de Minas Gerais. It shall, therefore, take the opportunity granted by the established bridge, by taking advantage of both worlds and world views. On the one hand, the work has profited from building upon the work of European Academia that since the 1990s has taken the effort of decolonizing knowledge, and more recently urban knowledge[4]. On the other, being from Belo Horizonte has allowed to dig deeper in the extensive body of literature already written on the city, both used as a historical source but also as a material to critically access under a decolonial perspective.

Belo Horizonte as a case study: a spatial history in three episodes

Belo Horizonte is an emblematic case of new city planning and building in Brazil. It was planned and built at the turn of the 19th century, conceived to be the capital of Minas Gerais province in substitution of the previous

capital Ouro Preto. It was not only the first of its scale[5] and a novelty for the recently inaugurated Republic of Brazil (1889), but also the first for which almost all steps of planning and implementation where centralized by the State.

Throughout its 120 years, the city has repeated its first foundational move at least two times, by extending its territory through the inauguration of new patches far away from the existing tissue rather than a continuum horizontal sprawl. In all this 'jumps', the urbanization modus operandi has been reinvented in terms of practices and forms through State actions, real estate market operations or by its citizens. In this thesis, each of these moves has been identified as an important episode that has contributed to the making of Belo Horizonte, through which a spatial history of Belo Horizonte will be reconstructed. Despite presenting distinct spatial result and diverse motivations, a deeper look at those episodes has revealed the persistence, through repetition, of specific patterns in the formation of their urban space. While much more on each episode will be exposed in the respective chapters, some of their aspects deserve to be here mentioned.

Belo Horizonte's inauguration has been marked by the implementation of a strict geometrical grid, inaugurating new modes of living in a new territory. The transformation of landscape necessary for constructing this new city included extensive ground manipulation, which involve the canalisation of watercourses and drastic earthworks, in addition to the expelling of the population previously living on the site. Moreover, the expropriation of land, the infrastructural investments made and the real estate market established, meant that the new city was not accessible for all, installing with the new city also new forms of socio-spatial segregation (Aguiar, 2006; Penna, 1997).

Already forty years after being inaugurated, the city reinvents itself through the construction of its first satellite-city in Pampulha, 12 km north from its centre, in completely new forms. In opposition to the initial administrative ordered city, constrained to its grid, Pampulha is conceived as a lived-in leisure landscape, which urban form is generated by the curves of an artificial lake. Whilst the construction of Belo Horizonte has been framed under positivism and republican ideals (see more further), Pampulha becomes the sign of an emerging authentic national modernity, distinctively shaped by the State. However distinct in terms of spatial arrangements, Pampulha's idealizers have inherited from Belo Horizonte's core builders the audacity for extreme ground manipulations, the confidence in the State's strong guiding hand towards progress and development and, unfortunately, the social segregation stratagems.

The third episode of Belo Horizonte's urban space reinvention through repetition is a lesser bold foundational move, but nevertheless still meaningful. It did not present such a fast implementation as the others, but it is again the case of the formation of a completely different space, detached from the usual gradual suburban expansion seen in Brazilian cities and also present in Belo Horizonte. The overspill on its southern neighbour municipality of Nova Lima, happening punctually since the 1950s, but more intensively in the last two decades, goes in the opposite direction of the city's historical urban expansion towards the north and of the succession of State investments in strategic infrastructure in that same direction. On the contrary, the urban expansion towards Nova Lima is orchestrated by the private sector and therefore by capitalist interests, more specifically of the mining and real estate sectors, however still under the consent and collaboration of the State. Besides being dictated by a strong market ideology, Nova Lima's occupation is underlined by the current trends of urban living within nature and of the enclaved society.

Thus, each episode is presented as a new moment, while also being a continuation of the previous, sometimes with a few jumps in time and sometimes with overlaps. The analysis of Belo Horizonte's foundation and implementation covers from the 1890s until the 1920s, while Pampulha's case starts at the late 1930s, concentrates around its implementation period in the following decade, and its spatial results are analysed in their contemporaneity. The case of Nova Lima has a larger time span, beginning around the mid-1800s, when mining and urbanization started to gain another dimension in the region, and covering very recent events.

Belonging each to a specific moment in global, national and local histories the three identified episodes are usually analysed each within its own context or motivations. Those can be external referential models, such as the Baroque city and the garden city or specific political ideals or projects, such as the one of the Republic at the turn of the nineteenth century or forms of nationalism associated with modernization typical of the 1930s-1940s in Brazil. They are also often analysed under more broad socioeconomic effects on urbanization such as socio-spatial segregation, the emergence of the enclaved society and the rise of neoliberalism[6]. The history of Belo Horizonte's urbanization has also been framed, of course, under the specific framework of urban planning[7].

This focus on representations rather than real life – that is, in ideologies, plans and projects instead of built materiality, urbanization practices and everyday life - has had a particular relevance in the history of urbanism and planning, often articulated by means of the projects, plans, master plans

and legislation. The result of this approach is a history of ideologies and discourses laying behind such projects, which in fact only alludes to reality. Although often treated as one, the history of urbanism and planning is fundamentally different from a history of the city. Recognizing this gap, the research proposes to detach these two in the context of Belo Horizonte. Although it does not intent to reconstruct a wholesome history of the city, it proposes a reflection on the process of producing urban history by presenting a narrative of its spatial history.

Despite the different moments, motivations and spatial results produced in each of the exposed episodes, the thesis' hypothesis is that common patterns of urbanization might be identified within the episodes as the above exposition has begun to outline. One of the assumptions is that, despite the transitorily and ephemerality of the urban gestures seen in the city's history, they act as to reproduce long living politic-economic relations of accumulation and exclusion, territorialized and often crystallized in urban tissue. In this specific territory, whatever the ideologies and plans at stake, there are patterns which are particularly persistent in its historical profound transformations of space such as ground manipulation, state infrastructuring and urban legislation, public-private alignments towards real estate development, conducting several forms of socio-spatial urban segregation.

Looking retrospectively in Belo Horizonte's spatial history, the research main question is which are the operative logics hidden behind (state) plans and other discourses and which is the modus operandi of everyday city-shaping which has, in the spatial history of Belo Horizonte, acted as to reinvent itself several times, while perpetuating long standing processes of uneven urban development.

By focusing on three key episodes that triggered critical shifting moments in the city, the research intends, thus, to uncover overshadowed processes of urbanization that have, perhaps much more than official histories and projects, shaped the city. While acknowledging these perspectives and reflecting upon them, the research moves forward to understand the history of Belo Horizonte as a history of a constructed territory, with all its layers and complexities. It looks for their hidden similarities amongst evident differences, aiming at the identification of patterns and practices of urban formation, contributing to the construction of an urban theory which derives from ground realities rather than referential models.

One of the objectives of the research is diversifying the sources of history, by moving away from the protagonist role assigned to projects as the

primary generators of city form. It aims to shed light instead, on the local assemblage of social relations, political-economic interests and political ecology acting in this materialisation.

To achieve these aims, the research will operate a historical revision through contrasting ideas, urban plans and models to real-life practices through their materialisation in Belo Horizonte, contributing for the expansion of possible starting points from which to build a method for urban history. Adding new lights to the already extensive existing bibliography on the history of the city, it aims to offer other viewpoints over the same historical and material facts. Proposing a shift from the plans, ideologies, visions directed at the urban, the research aims to bring light to the physical materiality of space and to the actors and processes involved in the transformation of the landscape. Space, landscape and actions are therefore key concepts that frame this analysis, to be discussed in the first chapter.

In order to grasp these other dimensions of spatial transformation the research has counted on a diverse range of sources. Besides a critical analysis of consolidated secondary historical narratives, the analysis of all three episodes has been extensively supported by archival material such as maps, photographs, newspapers, magazines, administration reports and interviews. To access the contemporary spatiality of the second and third episodes a qualitative analysis has been constructed with the support of fieldwork, site visits, photographs and interviews. A fundamental tool for this research has been the use of cartography, an essential tool for the proposed diversification of sources and methods for urban studies and fundamental in the discovering new sets of relations on space and also as a precious form of visual narrative. A reflection on the cartographic method and practices and its role on constructing narratives will be exposed thereafter.

In the following chapters, each episode will not be treated as an individual event, but instead, it will be expanded into a chain of events proceeding each main event and also being generated by it. Thus, each of the thesis' episode is presented through a concatenation of events in which, directly or indirectly, human action results in materialized urban space. They are chosen not by the usual historical approach, in which all political and economic affairs considered important by the usual historiography are chronologically enlisted, nor by the usual geographical approach, in which all physical and demographical aspects must be described. They are also not chosen by the usual urban study, or rather, urban planning approach, in which masterplans, projects and urban regulations occupy a predominant role. Through a combination of these approaches and others, the events

here exposed and analysed and their constitutive ingredients are chosen predominantly from the perspective of space, through the conceptual tools and interpretative lenses to be exposed in the first chapter.

The narrative through episodes has allowed to cover a history that starts with the first colonial settlements in the state of Minas Gerais in the early eighteenth century and ends with the most current transformations in Belo Horizonte's expanded territory. Considering the time jumps between episodes and the premise to diversify the sources as much as possible, the author redeems to the impossibility of producing an overarching history of Belo Horizonte's spatial practices and acknowledges its incompleteness. The research aims neither at finding any sort of universal paradigm for explaining urban development processes in Brazil nor producing a meticulous description of a very particular and individual case. Something in between, the research intends to unveil some of the rhizomatic patterns engaged in city making, through the spatial history of Belo Horizonte's development. Time and space – the time-span of a PhD and the space of a readable doctoral thesis - will always constitute severe limitations for any project for pluri-versality. Nevertheless, it is worthwhile to explore new possible starting points.

The impossibility of completeness of such project has been well described by Lefebvre:

> *"How many maps, in the descriptive or geographical sense, might be needed to deal exhaustively with a given space, to code and decode all its meanings and contents? It is doubtful whether a finite number can ever be given in answer to this sort of question. What we are most likely confronted with here is a sort of instant infinity, a situation reminiscent of a Mondrian painting. It is not only the codes — the map's legend, the conventional signs of map-making and map-reading — that are liable to change, but also the objects represented, the lens through which they are viewed, and the scale used. The idea that a small number of maps or even a single (and singular) map might be sufficient can only apply in a specialized area of study whose own self-affirmation depends on isolation from its context."* (Lefebvre, 1991, pp. 85–86)

A Cartographical Approach

In the last three decades, at least, it has been remarkable the growth in the explorations of mappings and cartography as a tool for apprehending not only space itself, but mostly, human action in and towards space, which is here one of our goals.

But obviously this predominant role given to space and cartography is not anything new, its most significant moment dating from Renaissance. It is no coincidence that the rise of cartography is aligned with the period of the great navigations and, with the "discovery" of the Americas, a complete change in space perception and world-view. At the same time, the development of the linear perspective and measurement tools installs a new relation between the subject and his/her perception of space, through the possibility of the individual gaze (Tally Jr., 2013). It is also not coincidental that the same period witnessed the emergence of the ideas around Landscape (Cosgrove, 1985), another key concept for this thesis which, as much as cartography, goes hand in hand with space apprehension and representation.

Digging into the history of cartography the geographer J.B. Harley has shown us, in *'Deconstructing the map'*, (1989) how maps are not mere representational tools, but in fact, act as instruments of power and authority relations. With cartography, it becomes easier to draw lines on the territory and therefore claim possessions. In the early history of colonial Brazil, longitudinal lines have been drawn on maps attempting to organize and distribute land possessions but in truth, these lines rarely corresponded to ground reality. Although having been dissolved with time, their representations still figure in Brazilian collective memory as part of our history of colonization and domination. The most remarkable is the Tordesillas Treaty, theoretically dividing Portuguese and Spanish territories along a meridian line, and the *Capitanias Hereditárias* splitting the Brazilian territory into privately owned horizontal strips departing from the cost. But the mismatch between maps and reality did not remain in a remote past where survey technology did not match the enormity of the territory. As Harley has also pointed, "it is still easy for bureaucrats, developers, and 'planners' to operate on the bodies of unique places without measuring the social dislocations of 'progress'. While the map is never the reality, in such way it helps us to create a different reality" (Harley, 1989, p. 167-168) Therefore, by recovering and redrawing some of Belo Horizonte's historical maps, this research aims not only at dismantling the objective reality currently covering them, but also to create different realities with the

combination of other sources of mapping offered by transversal narratives. As Robert T. Tally Jr has observed, “[t]o draw a map is to tell a story, in many ways, and vice-versa” (2013, p. 4)

By establishing a connection of story-telling with mapping, Tally Jr implies a methodological dimension to mapping and cartographic practices which are less the interpretation of space or spatial relations and more a mode of collecting, organizing data and telling stories. Although his arguments tend more towards using mapping as a method that acts behind the construction of a narrative, in this thesis maps are advocated as active tools to, literally, construct visual narratives. As texts, maps are interpretative by nature as they are also a result of a collection, through the implicit selection of elements. While being open, they provide visual intertextuality connecting the visual materiality with the projected.

The cartography proposed by Deleuze and Guattari also takes distance from the associations with space and is proposed as a method. In line with other French philosophers, their cartography is a symptom of the refusal of modern sectioned and reductionist science characterized by the search for the totality of the world through the examination of the fragment. Instead, the post-structuralist approach proposes to tackle complexity by embracing multiplicity and, as Latour (2005) has defined, through uncertainties and contradictions.

In their seminal work, *A Thousand Plateaus* (1987), Deleuze and Guattari strongly deny any form of binary logic, that of the root-tree, which is, according to them, unable of understanding multiplicity (ibid, p. 5). In that sense, the authors develop the idea of the rhizome - a term borrowed from biology, meaning a root system without any hierarchy, nor pivot. “There are no points or positions in a rhizome, such as those found in a structure, tree, or root. There are only lines” (ibid, p. 8). Unlike the tree, the rhizome connects any point to any point, has no beginning and no end.

Connecting the ideas of rhizome, multiplicity and assemblage, the authors propose therefore their principle of cartography: "make a map, not a tracing" (ibid, p. 11). While the tree logic is the one of tracing and reproduction, the map is like a rhizome, having multiple entryways, always detachable, connectable, reversible and modifiable. Cartography is therefore always conceived as an open map, a method to approach the subjectivities understood in its processual dimension. "It's following a process and not an object" (Kastrup, 2008, p. 469). For a moment, the persistence in contrasting the rhizome to the tree, mapping to tracing,

the bad and the good side, might seem to revert to the dualism to which they so strongly oppose. On the contrary, Deleuze and Guatattari (1987) defend a constant movement between the tree and the rhizome, the map and the tracing. They explain: "It is a question of method: the tracing should always be put back on the map (…) It is inaccurate to say that a tracing reproduces the map. It is instead like a photograph or X-ray that begins by selecting or isolating, by artificial means such as colouration or other restrictive procedures, what it intends to reproduce" (ibid, p. 13). The tracing would be therefore the translation of the map into an image, organizing the multiplicities and structuring the rhizome. It performs as to reproduce the impasses, blockages and points of structuration of the rhizome and might be dangerously reproducing only itself instead of the map of rhizomes, and thus propagating redundancies.

Reflecting on the implications of this new approach to the cartographic method on the tools commonly used in urban studies, it seems to suggest that we avoid any form of graphic representation, or tracing, for its dangers of crystallizing processes, inserting blockages and interrupting lines of flight. Should we then, abandon the practice of drawing maps, so long associated with urban design and spatial analysis? The landscape architect James Corner does not believe so. In his influential essay *"The Agency of Mapping: Speculation, Critique and Invention"* (1999b), Corner picks up precisely from Deleuze and Guattari statement "Make a map, not a tracing" to argue for the crucial agency of mapping practice in not only reformulating what already exists but revealing and realizing hidden potentials. Mapping gains, therefore, a projective dimension, "first employed as a means of 'finding' and then 'founding' new projects, effectively re-working what already exists" (ibid, p. 222), that is, they make projections particularly visible.

Also for Waldheim (2016), the cartographic praxis has a great projective potential as "a representational project that merges spatial precision and cultural imagination". He regrets that the ascendance of "mapping" and data visualization has privileged abstract forces and flows, moving the trajectory of representation from physical description of ground conditions toward the depiction of unseen, immaterial forces. For him, this tendency is related to the association of plans (or maps) to "masterplans", seen as static and antiquated, incapable of dealing with complexity and dynamic relationships. Instead, he sees cartographic practices as a necessary grounding, as a mean to recognize, through visualisation, the spatial qualities of the earth, complementing systemic diagrams representing social, economic and political forces. Agreeing with Corner, he states that

"mapping is no longer thought to be a tool for description or representation, but rather as an instrument to produce ideas and actions". (ibid, p. 17).

Although Waldheim's arguments are mainly focused on the use of mapping for the design practice and therefore for imagining new possible futures, the same practice might be also used retrospectively as a way of reinterpreting spatial history and unveiling hidden realities. Therefore, a re-tracing and re-mapping of Belo Horizonte's historical cartography, layered with narratives, processes and actions, revealed the rhizomatic complexity of its landscape, while freezing a specific moment in time and considering all the actors and agencies involved.

Milton Santos' movement between landscape and space, which for him meant a movement between the frozen and the dynamic, can be directly related with the movements of tracing and mapping suggested by Deleuze and Guattari. Combining both perspectives, while tracing produces only a portrait of a frozen moment in landscape, mapping means to cartograph space, including actions, human life, social dynamics, economy, values, etc. It is necessary therefore to travel between the movement and the static, from landscape to space and vice-versa.

Our focus on materialities owes to the fact that, as Latour (2005) has observed, objects might become particularly visible when they are object of controversies, when they are in movement and when they become the centre of actions, discourses and counter-actions. Therefore, the urban objects, as the crystallisation of moments of territorialization and deterritorialization, become the trigger for the understanding of the alignments between humans and non-humans producing the city.

In the urban studies field, such alignments have been termed as 'assemblage', one of the conceptual unfoldings of rhizome and agency coming from Deleuze and Guatarri and from Latour's ANT (Actor-Network-Theory) and thoroughly explored by McFarlane (2011). Such concepts allow a double gaze on the material and the social, allowing to reveal, through 'things', the processes involved in their making. However, the criticism offered by Brenner et al (2011) on the assemblage-thinking and its focus on urban objects alert for the dangers in underestimating the political-economic forces acting in the city, as the accumulation of capital, the issues on land property, exploration, power, inequalities, etc. In contraposition, the radical critique of Latour arguments that such "social forces' are not enough for explaining the durability of such hierarchies and social asymmetries. Thus, one must look directly at objects and actors.

It becomes thus urgent to reveal how spatial and social asymmetries are

constructed and, therefore, which are the objects, instruments and actions contributing historically for the continuous and ceaseless perpetuation of this differences. They become therefore visible through their tangible materially. Observing and reinterpreting such gestures should benefit highly from both cartographic method and praxis.

Basing on the premise that every society produces its own space, Lefebvre argues that any 'social existence' that fails to produce its own space becomes a kind of abstraction unable to escape from the ideological realm, falling to the level of folklore and sooner or later disappearing altogether. In this analysis, this forms a possible criterion for distinguishing ideology from practice as well as ideology from knowledge, or, in his terms, the lived from the perceived and the conceived, "and for discerning their interrelationship, their oppositions and dispositions, and what they reveal versus what they conceal" (Lefebvre, 1991, p. 53). For the author, the great diversity of objects, natural and social, constitutive of social space are not only things but relations. Thus, mapping materialized urban objects is a way to move away from urban planning and tackle directly urbanization processes by accessing directly built matter.

For Lefebvre, the only way to illuminate an object nature and reconstitute the process of its genesis and the development of meaning is to get back from the object per se to the activity that has produced/created it. Otherwise, we are left with only abstract objects, models that are no more than representations. (ibid, p. 113). As much as the author is not concerned only with the descriptions of things or the discourses about things, but the social practices that produce things (and spaces), this thesis, while looking at urban built form is actually explaining their production processes and, most importantly, the social relations they embed.

Also for Milton Santos, it is important to consider the dialectical relation between objects and social relations, once objects embed social relations and those impact objects. One would become an empiricist doomed to make erroneous analysis if it considers only a place and not the history of relations and objects in which human action takes place (Santos, 1988) In this thesis, the appropriation of Deleuze and Guatarri's (1987) ideas of rhizome, plateau and cartography with be two-fold. Firstly, it serves to de-hierarchise sources, images, maps, narratives, all to be considered as truthfully equal testimonies of urban histories, besides more traditional academic bibliographical references. Secondly, it serves to combine topographies, topologies, events, laws, praxis and narratives through a careful work of selection and isolation (Corner, 1999b) in order to project new histories. Thus, maps serve to create alternative narratives, which are

also visible and therefore more tangible.

The dialectic move between maps, tracings and texts is also an intertextual move between materialised urban form and processes, which is here my main focus. While focusing on objects and form, I am instead trying to capture the essence of its processes and the set of relations that are involved in its construction, since, as Latour (2005) made clear, it is the process of fabrication and discussion over an object that makes social relations visible. Therefore, we will first approach cartographically the crystallised urban form in order to actually grasp performance, travelling between tracing and mapping, as Deleuze and Guatarri have suggested. Historical narratives are thus complemented by mapping and vice-versa, in a dialectic relation.

Why mapping urban history?

Naturally, as a planned and therefore a drawn city, all facets of cartography - sketching, mapping, surveying, planning - have had a protagonist role in Belo Horizonte's history, since before its foundation. The 1895 plan elaborated by Aarão Reis (Image 21) and his team figures in almost every historical account of this city. If the project is not inserted as an image, the plan and its author are at least mentioned in text as an introduction to the city's emergence. As the plan's iconic image has consolidated in its local history as a symbol of its creation, such imaginary projections have overshadowed the conditions of its actual implementation, deleting simultaneously its past and future while enhancing the ex-novo illusion. In this process, at least two other important historic cartographies are largely ignored: the one of the demolished pre-existent village; and the cadastre map of 1928-9 (see in the second chapter). Both of them inform us of contrasting ideas to the ones embedded in the image of the 1895 plan. Respectively: the one of the tabula rasa since an entire village was demolished and substituted, dislocating more than 400 people; and the one of the instant city, as it took more than four decades for this plan to become built matter. Thus, the dissemination of the plan of 1895 as the image of Belo Horizonte's foundation history has overshadowed the fact that the plan was not built instantly and that it was built on a location where a settlement already existed. This means that village and city co-existed for some time although there are very few records of this transition period[8].

As we know it, History - with the capital H - is always told by the victorious,

therefore from the centre, while small histories from the periphery are shadowed. Under the modern scientific paradigm, the spatial History of Belo Horizonte has been told mostly through the perspective its plans and great acts. As such, many historical overviews have focused on the urban form proposed for the city, searching for its premises or failures (Aguiar, 2006; Correa, 2016; Le-Ven, 1977; Salgueiro, 2001). The genesis of Belo Horizonte is predominantly pictured as being inspired by positivism and European urban models, producing distorted images of incompleteness and failures (see Chapter 2).

The approach through mapping shall allow moving away from the fixed image the Project as the main generator of planned cities while reinserting other forms of narrative in its spatial history. The proximity of narrative and mapping has been elaborated by Tally Jr: "Sometimes the very act of telling a story is also a process of producing a map. And this operates in both directions, of course: storytelling involves mapping, but a map also tells a story, and the interrelations between space and writing tend to generate new places and new narratives. (Tally Jr, 2013, p. 46)

As Lefebvre has put it, a long history of space - considered by him as neither subject or object, but a social reality, and, in consonance with Milton Santos, a set of relations and forms - "is to be distinguished from an inventory of things in space (…), as also from ideas and discourse about space. It must account for both representational spaces and representations of space, but above all for their interrelationships and their links with social practice." (Lefebvre, 1991, p. 116)

In a recent publication Paola Bernstein Jacques and Fabiana Dultra Britto (Britto & Jacques, 2017), call attention for the survival of urban gestures which resurface in other times to haunt the city, be in material form or memory. For them, revisiting this "complex game of temporalities, of different forces between past and present, between the 'occurred' and the 'nows', through synoptic montages of heterogeneous times still surviving in the cities, forces of the past remerging on the present (…) as flashes and sparkles of involuntary memories" (ibid, p. 14) means also bringing light to the "blind fields" of Lefebvre (1991). For him, blind fields exist when reading the present with the eyes of the past, for example (mis)reading the Urban age from the nationalities of the Industrial Age. The examination of Belo Horizonte's spatial history across the three episodes allows to identify these forces of the past that remerge in the present, identifying involuntary memories.

A deconstruction of a consolidated history becomes even more urgent under

the light of post-colonial consciousness. Searching for the construction of a Latin-American architectural historiography, the Argentinian historian Marina Waisman claims that there is a distortion between the historical reality which serves as the basis for the elaboration of concepts and the later application and exploration of such concepts in the countries marginal to the centres of intellectual production. This occurs because, in general, the concepts used as instruments for the exploration of realities where elaborated from other contexts, the ones of the central countries (2013, p. 42). This mismatch between concept and reality was also experienced by Ananya Roy while doing research in Calcutta (2015), where she noticed that the concepts of urban theories used in central countries did not fit the reality she faced in the field. From this acknowledgement, the author questions if the dominant cultural theories are adequate for explaining those places on the map that seem marginal and different and how urban theory can explain places like Calcutta. Recognizing a mismatch between the dominant theories and the reality found, Ananya Roy proposes, therefore, the construction of new geographies of theory, meaning, the production of theories from the "global south" as a possible way of reconcentration of critical urban theory. According to the author, post-colonial theory allows thinking in a relational manner about cities. Relational thinking finds resonance in the idea of rhizome, representing a denial of the tree-root structure as it demolishes centre-periphery relations.

Equally, the history of Brazilian cities and urbanization shall not be read and repeated from the universality of history, underlined by the linearity of time embedded in ideas about progress, but instead from its own geography and its own temporalities, by use of relational thinking, as defended by Ananya Roy. Such notion opens the way for anachronisms and heterochronies which, on urban space, are found under the form of “coexistences of different times in the cities, non-pacified coexistences causing strangeness, conflicts, shocks.” (Britto & Jacques, 2017, p. 2 8)

But the deconstruction and the re-telling of the history of the city faces the following deadlock: the disappearance of the non-dominant, non-homogenized, heterogeneous narratives. The proposed solution here is the mapping of materialities, of crystallized urban objects, especially when they become the object of confrontation and debate. Although many European and North American references have been used in this thesis to construct the methods here exposed, conceptual tools and interpretative lenses (see next chapter), the analysis of the cases was foregrounded by local sources and strongly supported by cartographical and site analysis. This has allowed a reading of the city materialization from its ground

reality and contributed to the construction of a relational thinking about urbanization processes in Brazil.

The mapping of crystallized objects actually sheds light in their processes of fabrication. Their repetition in history identifies the permanence of certain gestures. As it has been defined by the urban historian Margareth da Silva Pereira: "A mix of constructions more or less conscious of its stubbornness, the city, in its materiality can be read as a cartography of those successive and juxtaposed gestures" (Pereira, 2017, p. 151). According to the analysis of Marina Waisman, in our countries, the longue durée elements are not in architecture but in urban tracing, in the urban vocation and in the life of the streets (Waisman, 2013, p. 82). Therefore, the reading of the stubborn presence of certain urban forms and social practices throughout history, might contribute to produce other narratives.

The anachronistic gaze to persistent urban gestures allows the identification of the involuntary memories, through lags and repetitions, the presence of the "now" in the gestures of the erstwhile, bringing new light to the history of Belo Horizonte. Looking at the city from the perspective of the heterochronies implicates the challenging of combining different scales of analysis and different historical times simultaneously once one recognizes the desynchronized nature of the political, economic, cultural and ideological temporalities in the diverse forms of space production and therefore its intrinsically rhizomatic character.

In urban history, it is not enough to portray a certain landscape in a specific moment in history but is equally important to be able to grasp the processes involved in the formation of this landscape, considering it as a space in which human action is in place. The analysis of three different episodes in the history of Belo Horizonte aims at unravelling the actions and process around a specific event that have triggered profound transformation in the city dynamics.

Endnotes

1 For more on this see Souza, 2002; Villaça, 2012

2 How Belo Horizonte born are called.

3 For the author, non-existences are produced whenever a given entity is disqualified, becoming invisible, unintelligible or disposable. (See B. de S. Santos, 2004, pp. 787–789)

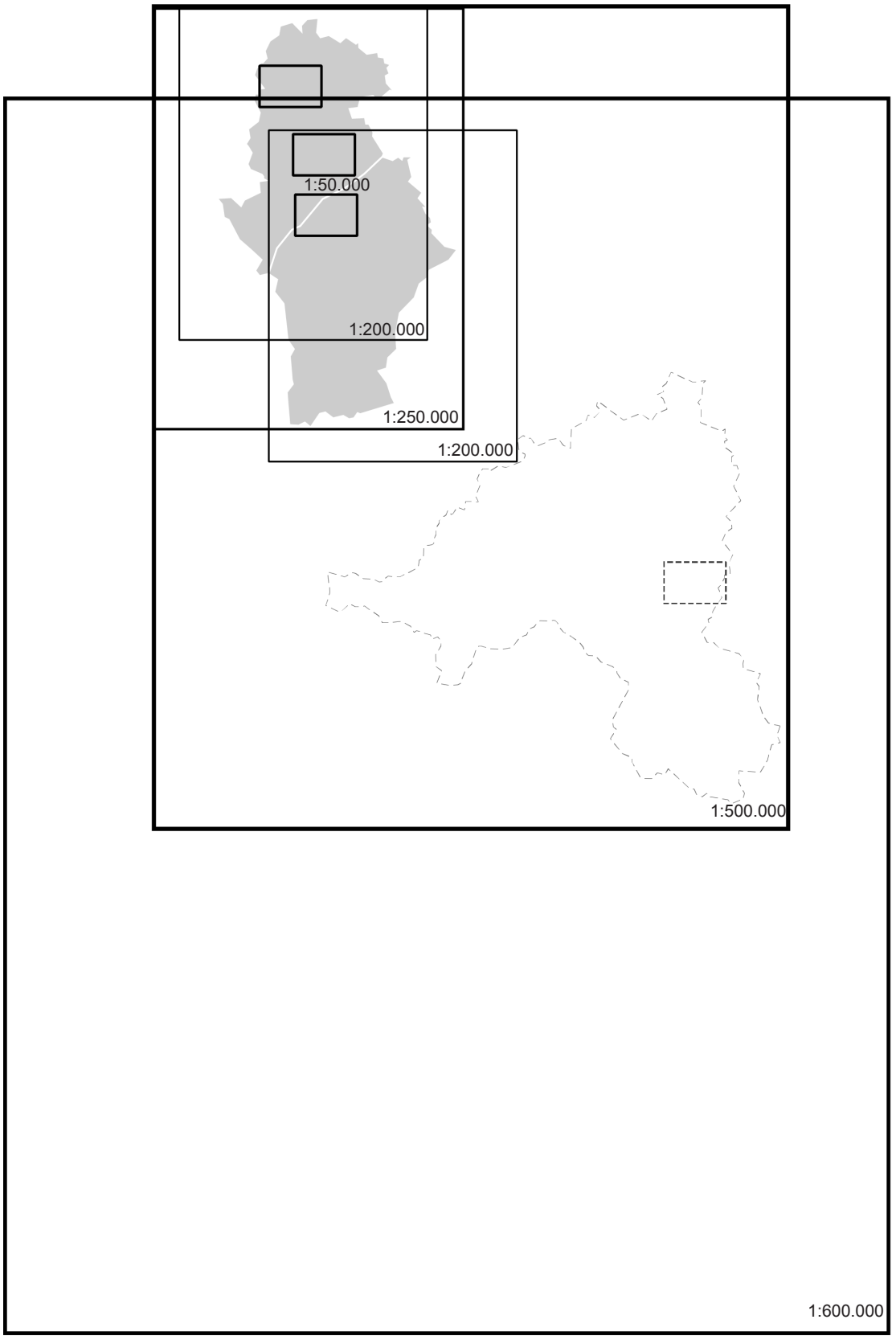
4 Some that have been relevant to this research, which includes European and non-Europeans are Miglievich-Ribeiro, 2014; Mignolo, 2005; Parnell & Robinson, 2012; Robinson, 2002; Roy, 2015; B. de S. Santos, 2004

5 In 1851, during the Imperial government, Teresina (then named Vila do Poti) was planned to be the capital of the Piauí province in northern Brazil. Its plan was a simple and small grid at the margins of the Poti River, far from the complexity and scale of Belo Horizonte's plan.

6 See specific bibliography on each chapter.

7 See for example (Faria & PLAMBEL, 1979; Tonucci Filho, 2012)

8 Barreto (1996 [1936]) and Linhares (1905) are important sources of this transition moment as their narratives include the construction of the new city. However, their emphasis is more on the engineer's doings and less on the spatial results of this momentary juxtaposition.


1:50.000
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1

Preparing the ground: conceptual tools, interpretative lenses and historical antecedents

This chapter is divided in two parts. In the first, it presents the referential theories which have served as conceptual tools for the construction of such spatial narrative: Space, Landscape and Action. Under this umbrella some interpretative lenses have been developed, consisting of more operative categories through which to tackle the more general conceptual tools.

Later, the chapter presents the antecedents to Belo Horizonte's foundation with a brief narrative of the historical conditions which have led to the construction of Belo Horizonte. Focusing on the production of the urban through the transformation of landscape, it describes the establishment of a colonial mining urban network in Minas Gerais, with origins on the discovery of gold at end of the 17th century. Although the inauguration of the capital Belo Horizonte promised the start of a new modern era for the state, the territory in which it is installed is only 90 kilometres away from the previous capital and therefore inserted within the urban network established since colonial times. Already in 18th century Minas Gerais, the urban is deeply intertwined with the mining activity and some of its economic and social spurs, which finds resonance later in the urban history of the new capital Belo Horizonte.

1.1 Space, Landscape, Action: concepts and interpretative lenses

Space, Landscape and Action constitute, together and in combination, crucial categories that here function as base-ground for the construction of the lenses used to observe, expose and interpret processes of urban development in Belo Horizonte. These notions are key to the approach here proposed, which focuses on processes generators of urban space, which can also be interpreted as a dialectical relation between human action and space, having the construction of landscape as one of its tangible results. In this section I will revise theoretically the meaning of these notions in the broad field of urban studies and explain how they contribute to the analysis of the episodes, as they become operative through the building of specific interpretative lenses.

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Image 03: Frames and scales of analysis and mapping.

1.1.1. Space and Landscape

The growing insertion of the several dimensions and implications of the space category within social and urban studies is generally considered as a particular expression of postmodernism and its characteristic space-time compression (Harvey, 1990) and representational crisis (Jameson, 1991). From the second half of the twentieth century, authors from diverse fields, predominantly in the north, became particularly concerned with the idea of space. This move has been called the 'spatial turn' by many authors, meaning the reawakening of the problematic of space as opposed to the predominant nineteenth-century focus on time, transparent in its obsessions with history and progress. The shift was announced by Foucault already in 1967 (in a lecture only published in 1984 as *Des espaces autres*, and much later in English, (1997)), and was later picked up by architects, geographers and other social theorists[1]. Lately, the socio-spatial dialectics have become a largely used instrument for architects and urban planners to tackle contemporary urban problems (and the social issues embedded in those) as being able to encompass time-space, geography and history simultaneously while putting the city space at the locus of social change.

Within this context, it has been remarkable the accomplishments of the Brazilian geographer Milton Santos in conceptualizing the notion of space since the early 1950s. In *'Metamorfoses do Espaço'* (1988) the author had already outlined his view of the important distinction between the categories of space and landscape, which he further detailed in the book *'A Natureza do Espaço: técnica, tempo, razão e emoção*', published firstly in 1996, affirming it as an epistemological necessity (Santos, 2002).

He defines space as, amongst many other definitions alike, an inseparable aggregate of systems objects and systems of actions. It is in the interaction between them that lies the dynamism of space allowing for its transformations. While the system of objects provides forms to actions, the system of actions either leads to the creation of new objects or gets realized through pre-existing ones. Space is not a thing nor a group of things but a relational reality that involves things and relations together (Santos, 1988).

In other words, space is a hybrid composed of form and content in which object and action, the materiality and the event should be treated as one. The importance of space relies on the fact that human society is always realizing itself over a material base, the space and its use, time and its use, materiality in its many forms. Therefore, understanding human society implies also the knowledge of the spaces it creates and transforms.

For the author, the key element which differentiates the notions of

Landscape and Space is action, or human life. The first can be defined as a material base in which human action has already worked as to transform, an image in which it is possible to see the previous actions in a holistic perspective. Space, on the other hand, is the landscape added with present human actions, a unique situation that only happens in the 'now'. Although he affirms that action and movement are constitutive of space, while landscape is merely the material system which receives life, the latter shall not be seen as immobile since it is always under transformation. However different, space and landscape are for Milton Santos a dialectic pair, complementing and opposing each other, forming a palimpsest in which actions from different generations are superimposed through accumulation and substitution (ibid). These dialectic relations between space and action, space and landscape are also present in Henri Lefebvre's understanding of space (1991). What Milton Santos calls landscape, the receptacle of human action through which it is transformed in space, is for Lefebvre treated as 'pure nature'. While Santos defines space simply as landscape added with human life, including fluxes and movements, Lefebvre adds other complexity layers considering several categories and levels of spaces, including mental space, one of plans and ideologies.

In his understanding of space, Lefebvre goes beyond the binaries of mental and physical space consolidated by philosophers and mathematicians. In *La production d'espace* (Lefebvre, 1991 [1974]) he introduces the third term: the social space, which is different from both. For him, there was hitherto, in philosophy mainly, a large gap between the 'ideal' mental space and the 'real', lived in space. For overcoming that, he calls for a science of space, which must provide a true knowledge of space and the processes involved in its production, rather than mere descriptions of spaces that exist in their physical reality or generating discourses on spaces. Social space, for him, is not a mere aggregate of things, pure form, and it is also not only their content and symbols. Space is defined by Lefebvre as social because it "implies, contains and dissimulates social relationships - and this despite the fact that a space is not a thing but rather a set of relations between things (objects and products)" (ibid, p. 83). Within the social relationships inherent to space one must include for example the property relationships - ownership of the land, especially - and the forces of production which are determinant on giving its form. The reality of social space is, therefore, at once formal and material.

The city is considered by Lefebvre as a social product once it is produced by people or groups of people, gradually and not at once. Even if a city is planned, like Belo Horizonte, it might at times be still considered a

product and not a work of art, because its concretion is not instantaneous but gradual. But the separation between works of art and products is not a radical one. Lefebvre has pointed to the dialectical relationship between them, in which works are inherited to products and products are not necessarily all about repetition, having the possibility of being unique, like works of art. A social space can be, simultaneously, work and product, as the materialization of 'social being' (ibid, p. 102). His idea of the production of social space has also a strong connection with the forces of production as well as the relations of production that are inherent to any city. But those do not have a direct effect on space without mediations and mediators, "the action of groups, factors within knowledge, within ideology, or within the domain of representations." (ibid, p. 77).

As the thesis is interested in exploring (some of) the rhizomatic textures of the several urban formation processes in Belo Horizonte's history, it focusses not only in the systems of urban objects and urban forms but, perhaps more importantly, in the social interactions that simultaneously shape them and are generated by them. Hence, the notion of the social production of space, so thoroughly conceptualized by Henri Lefebvre (1991), Gottdiener (1985) and others, or even, the social-spatial formation as it has been called by Milton Santos, constitute important theoretical lenses to this thesis.

Perhaps one of the most emblematic aspects of the modernity's socio-spatial dialectics is its dominating attitude of man towards nature, which has had a predominant role in Belo Horizonte's territorial transformation. Recognizing that, one of the interpretative lenses through which to analyze it is 'Embedding in nature, transforming landscape'. The understanding of this approach has had, in Belo Horizonte's urbanization history - but also in city building more generally - , two particular dimensions: the embedding in nature and the subsequent construction of new landscapes.

The first is related to the taming and manipulation of nature in the direction of men's modern needs and desires. Very soon in Minas Gerais' history, the utilitarian discourse of mining has replaced the term "nature" with the term "natural resources", with focus on the aspects of nature which could be appropriated for human use (Scott, 1998, p. 13). It was the geography of mineral resources which determined Minas Gerais' colonial urban constellation at first, explored to meet the necessities of Portugal at the time (see further in this chapter). When the decision of transferring the capital came into the scene, the positivist rationality meant that natural resources would have a great weight in its location choice (see next chapter). Water, topography, wood, crops, livestock become therefore

indispensable assets with which to make a city. The embedding of the city within nature transforms lands in plots, trees in firewood and rivers into piped water in the process of their commodification.

The second dimension is related to the construction of landscape as an outcome of urbanization. "Urbanize the rural, ruralize the city" said Cerda in one of the founding texts of urbanism (Cerdà, 1867 apud Soria Y Puig, 2010). One of the dimensions of this statements means that town and country are complimentary parts (ibid), meaning they are both part of the same landscape. The other implies that constructing a city requires also the design of its nature. This is even more significant in planned cities, in which all spaces are (ideally) planned and manufactured in unity. Therefore, in Belo Horizonte, with the grid comes already the park, as its counter-image, with the straight avenues comes also a straight line of trees. In an appropriation of James Scott's forest analysis, we can say that the real, diverse, and chaotic old-growth forest gets transformed in a more uniform forest that closely resembled the administrative grid of the state power. The cityscape becomes therefore a transformed nature, with significant ground and water manipulation, making a second, or even third nature, with parks, avenues, lakesides and even agriculture. The city can thus be seen "as a process of transformed nature, as the metabolic and social transformation of nature through human labour, [which] turns into a 'hybrid' of the natural and the cultural, the environmental and the social" (Kaika & Swyngedouw, 2000, p. 121). In this process, human intervention acts as to transform landscape, conforming, thus, the social production of space. 'Pure nature' acquires new values and functions as it is tamed, manipulated, transformed.

Through this lens, the city territory will be seen as a constructed landscape, allowing thus the incorporation of themes such as ecology, water, soil, underground minerals and agriculture which have played fundamental roles in Belo Horizonte's territorial history.

In the recent decades, the concept of Landscape has acquired new meanings in the field of urbanism, understood, for some, less as a category and more as a tool. As we know it, landscape is not a new idea, dating from the Renaissance as reminded by the geographer Denis Cosgrove (1985, p. 46). It has however lately become a meeting ground to geographers, biologists, artists and sociologist with architects and urbanist that start moving their attention beyond the city, seen the increasing fragmentation of urban tissues along with the dissolving of long-standing dichotomies such as rural and urban, nature and culture. In the 1970s Henri Lefebvre referred to this phenomenon as the simultaneous implosion-explosion of the

European city (1999). It implodes (internally) breaking into disconnected fragments, and it explodes (outwards) in small detached pieces, spreading heterogeneous forms of urbanity across the rural landscape. Terms such as *Cittá diffusa* (Secchi, 2012) have emerged in attempt to conceptualise this fragmented and heterogeneous urban form and, mostly, to categorically separate it from the modern city and the ones preceding it. Interested in understanding the social production of urban space in North-American cities, Mark Gottdiener (1985) treats the phenomena as "deconcentration", acknowledging that neither conventional - or, according to him, mainstream - or Marxian politico-economic approaches which focused on the dominance and hierarchy of historical city centres were adequate to deal with the new nature of urban form. Such new meanings and applications of Landscape are inserted in the many attempts to find new methods to approach the urban complexity.

Thus, terms such as de-concentration, fragmentation, discontinuity, dispersal, and porosity, amongst others, have more and more been used to describe the contemporary city. This reconceptualization comes as a reaction to the de-industrialization of the European cities (Secchi, 2007) paralleled with a radically decentralized urbanization increasingly characterized by horizontal sprawl and rapid change. It comes also from the realization that the model of the bounded city form was inaccurate for understanding the late twentieth century city (Gottdiener, 1985). In this context, Landscape is presented as a model of contemporary urbanism that is uniquely capable of describing such conditions (Waldheim, 2006, p. 37).

While applying the notion of Landscape to approach Belo Horizonte, the first important question to be asked is whether such models are valid for interpreting all cities worldwide, be it the previous bound model or the contemporaneous de-industrialized fragmented city. More directly, can this transition be perceived in the Brazilian cities? The answer is no. Not only Brazilian cities saw an unprecedented fast urbanization from the 1950s onwards, but, since the beginning, its processes of urbanization have been deeply marked by fragmentation, asynchronies and simultaneities, in a context of an anomalous modernization (Martins, 2000). In this context, a plan for a city, such as the one for Belo Horizonte, can never be only a plan of a city, it implies a constellation of transformations in its surrounding territory, which can only be understood if we look broader, seeing the city as a constructed landscape and looking at other practices that transform space, as is our approach.

These recently developed notions and applications of Landscape are not

radically different from Santos' simplified idea of it, as ''everything that the eye can reach" (Santos, 1998, p. 21). However, Landscape Urbanism as a tool emphasizes two important implications that will be crucial to the sort of approach proposed in this thesis. Firstly, it goes beyond the focus on urban from – spatial arrangements of streets, typologies, functions - being capable of embracing also large infrastructures, under and above ground, natural resources and ecology as well as social practices which have been so determinant in the history of Belo Horizonte. It therefore combines the concepts of landscape and space described above. Serving as interface between nature and culture, Landscape Urbanism is an interdisciplinary field of study, through which to examine the territory: a product of the interaction between human and natural processes. It therefore no longer refers only to garden planting or pastoral scenery but embraces fields such as urbanism, infrastructure and spatial planning alongside more known themes of nature and environment. Grounded on a global environmental awareness, Landscape Urbanism promotes the encounter of large-scale infrastructure - such as mining, highways and railways - to its surrounding territories. Although it has been conceptualized as a tool for design (Waldheim, 2006), here Landscape Urbanism is used as a mode of inquiry. Secondly, the wide temporal dimension of landscape projects the territory as a medium of continuous ongoing exchange, particularly relevant for historical spatial analysis. It allows therefore the construction of a dynamic portrait of each episode which is not fixed to a predetermined spatial framing or period, but presents an elasticity of scale and temporal framing.

Despite having been conceived in the North, reflecting on the conditions of northern cities, the analytical tools proposed by the Landscape Urbanism framework will be here useful to investigate the history of Belo Horizonte, in which the relation of wide scale infrastructure, ground manipulations, a network of human settlements and a sequence of plans are intertwined. The usual analytical tools of urbanism – which focus only on usual elements of urban form such as the streets, plots and typologies – are not able (alone) to unravel this complex history.

In this sense, the term 'Urban constellations' is here proposed as an interpretative lens that is able to grasp the complex and multi-layered character of the landscape transformations in Belo Horizonte. It allows framing the formation of its space as a system of objects that is always in a dialectic relation to a system of actions, as it has been defined by Santos. It allows seeing the transformation of Belo Horizonte and its peripheries simultaneously by integrating themes such as ecology, mining and agriculture, associating urban form and urban projects to its ground and underground conditions.

It is important to note that seeing its spatial history through urban constellations does not derive from the above mentioned recent interpretations on the fragmentation of the contemporaneous (European) city-form because this model does not fit our object. Although some views and methods are shared, it comes from recognizing that Brazilian cities have perhaps never had such a compact form, always forming constellations with their hinterlands. The view highlights the limitations of the narrow gaze, commonly apllied in urban studies, which sees only the city and not the constellations formed around it.

As Paula (2000) and Moraes (2007) have demonstrated urbanity in Minas Gerais has had a particular form since its origins (see further). The nature of the mining activity in the region has resulted in the early formation of an urban network of colonial villages with intrinsic connections with mining sites as the primary economic activity but also with agriculture and manufacture. What they called a *rede urbana*, an urban network, can be here reinterpreted as urban constellation, one than can include, beyond the city, also the simultaneous aggregation of mining, agriculture, transport infrastructure and all sorts of urban settlements. Although arising from a different empiric object, contemporary urban theories that acknowledge the city as an unbounded form becomes here instrumental for looking retrospectively at the history of the city and start rethinking its rural-urban relations. As city and country share common histories, they should be unified in a joint narrative (Cronon, 1992a).

The notion of constellation was used by Walter Benjamin as a strategy of thinking rather than a specific spatial form, allowing to think of the relation between objects – stars – through the understanding of their connections – the imaginary lines. The relational lines drawn in constellations are not defined only by proximity but for the possibility of meaning that their ensemble acquires (Velloso, 2018). Thinking through constellations has allowed Benjamin to think through montages, binding together heterogeneous and apparently disconnected fragments. This strategy of thinking can be associated to the socio-spatial dialectics above described, in which the formation of space is seen through the dialectical relation between a system of objects and a system of actions. In the construction of urban space, not only the product is important, but mostly the actions, practies and relations established in its construction. These can be as diverse as land property relations, laws, codes of conduct, the building of infrastructure, migration programs, etc., as will be exposed in the following chapters.

Bringing the notion of constellation to the interpretation of the constructed landscape unravels not only the intertwined relations between apparently disconnected fragments, such as urban tissues, mining and agriculture, but also highlights the diverse textures of layered operations on space.

1.1.2. Space and Time

Understanding space as alive, as a locus of action, process and transformation, implies automatically also the consideration of time. Time is, of course, an indispensable category besides space, object and action once our main concern lies within the processes of space production or, how actions meet objects, transforming them. In the meeting of time and space, one finds the notion of the event (Santos, 2002). The same idea is found in many texts using different vocabularies. Lefebvre (1991) talks about a moment, which is related to a possibility to be realized. Bachelard speaks about 'instant' and Whitehead of 'occasion' (apud Santos, 2002, p. 93). For Santos, the event is an instant in time realized in a point in space. They can be in the past, as a complete and finite reality, or be situated in the future, as a supposition. More importantly, events are unique situations, and never repeated; they are absolute. This absoluteness is what renders the efficacy of the event in their (spatial) transformative character. Although most of the times events presumes human action, they can also mean ideas and not only facts. An innovation can be a special kind of event in a given point in space and time, as it can inaugurate new modes of doing, organizing or understanding the reality. Events are also never isolated but belong to systemic ensembles. They can be diachronic, happening in succession throughout time or synchronic, coexisting in several places at the same time. This is, for example, the case of State action, where a determinate law can act upon a totality of people, institutions or territory simultaneously. Supported by Whitehead (1938, p. 255 apud Santos, 2002, p. 106) Santos affirms that each event has two simultaneous levels of existence, the global and the local, and that no event can be wholly and solely the cause of another event. He explains: one event causes the other through the universe, intermediated by totality, according to totality. Therefore, one must not analyse the event separately, but within the totality in which it is inserted, the succession of events, both globally and locally. Each event is at once a result of the global and the local simultaneously.

The category of the event will be key to build the episodic history of Belo Horizonte, exposing how each event, and their systemic ensembles, has impacted in the transformation of space. An event can be considered as both an action and an idea, physical and mental, applied upon a given

site in space in a given period in time. Throughout the narrative, events are exposed and aligned according to their potential in explaining urban formation processes through the meeting of a given time – in other words, a given contextual reality - and a selected space, generating new landscapes.

1.1.3. Space and Action: from theory to practice

Regarding human action, Milton Santos (2002) has called attention to the fact that sometimes the actor is merely the vehicle of action and not its true engine, that is, although space is produced by men, through its actions, often the origins of ideas and conceptualizations on that space come from elsewhere. In spatial terms, Lefebvre (1991) has differentiated a 'domination of space', when it is governed by plans and ideology, usually as a result of governmental imposition, and a 'appropriation of space', when the space carries social practices and private daily life. In cities, no space is completely dominated or completely appropriated, what we see are spaces inserted in a large spectrum, which has dominated spaces on one end and appropriated spaces at the other. For example, as civic squares, with is governmental buildings and monuments, are largely regarded as governed by ideology as they are built for and live through representation of State power, they can carry several levels of appropriation it its everyday life, changing continuously as social practices takes place. On the other hand, favelas are largely assumed as total appropriated space, being built by social practices with the absence of plans, ideologies or State. However, despite not being the object of state infrastucturing, these territories are most of the times an indirect result of state plans, actions and ideas, when, for example, they occupy the undesignated places or other city voids.

In Latin America, understanding the implications of ideology becomes essential when acknowledging the omnipresence of discourses of modernisation, progress, civilisation, and development which have haunted its territory and its people causing dramatic effects and having particular consequences in shaping its urban realms. The first evidence is that the very idea of the "Americas" was, according to Mignolo (2005, p. 2), an invention forged in the European process of consolidation and expansion of the Western worldview, associated with its colonial history. After the Jesuit missionaries, theology gave space to modern science, along with the ideas of progress and the linearity of time, as if culture was the very logic substitute for nature, civilisation for barbarism, modern for tradition and so on.

Althusser (1971) has defined ideology as being the imaginary representation

of the relations of individuals with their real conditions of existence. Situated in the dreams, ideology becomes latently transformative when there is a gap between the subject's representations and their real conditions of existence, triggering, therefore, the impetus for actions towards change. However, it often projects an ideal scenario without necessarily picturing how one gets there. This lag between "what/where we are" and "what/where we desire to be" is precisely the trigger that, on one hand, sets motion to ideology and even utopia. On the other, it perpetuates frustrations of the "incomplete project" as the one of modernity, a constant in Latin America (Almandoz Marte, 2014; Martins, 2000; Rubano, 2014). Having had Europe as its main role model - for culture sciences and also urban planning -, at least until the 20th Century when this started shifting towards the United States of America, Latin Americans embraced the ideologies of modernization and progress through constructing a gap between their real conditions of existence and an imagination of the future which mostly mirrored its 'godfathers' (Almandoz Marte, 2014). This has had its effects in arts, culture and economy, but particularly on the materialization of space, as the imaginary representations acquire more tangible forms, through the application of technological apparatus.

Despite being situated in the imaginary, and perpetuating itself mostly through discourses and education, ideology finds its material existence within a specific apparatus and its practices, operating to translate - often through imposition - a particular dominant system of ideas and representations exercising over a group. This means, in short, that the peoples' ideas are eventually translated into their acts, configuring practices, themselves regulated by rituals inscribed in the core of the material existence of an ideological apparatus (Althusser, 1971).

For Lefebvre ideology can only achieve consistency by "intervening in social space and in its production", that is, "(i)deology per se might well be said to consist primarily in a discourse upon social space" (1991, p. 44) This means that ideology needs to make the transition between a discourse about space to a practice upon space in order to achieve consistency and durability, through its materiality. As the author has also pointed, consistency does not imply cohesiveness. Mismatches between, in his terms, the conceived spaces and the lived spaces, are often the case.

For the author, a condition for ideology and knowledge to be distinguishable and to serve as an operational tool for spatial analysis as well as of the societies which have given rise to them, is to be subsumed under the broader notion of representation (ibid). Hence, any urban history that claims to be pluri-versal[2] must include not only the realised and unrealised projects,

masterplans and laws hovering over space - infilled with urban ideologies - but more importantly their translations to practices and actions resulting in materialised urban form.

As Althusser made clear, state apparatuses are the particular locus of the perpetuation of a dominant ideology, for its capacity of exercising power and making the representations of the dominant groups valid and particularly visible. A more or less coherent set of world-views makes its way through political discourses, especially in the justification of projects and policies or, more bluntly, through educational systems and norms, not to mention through a national constitution (Althusser, 1971). It becomes easy therefore to draw connection lines between State ideology and State projects and eventually State actions. However, the author has also shown that state apparatuses have in fact no unity, being composed of several different institutions (and ultimately individuals) with diverging interests, acting either in perpetuating the dominant ideology or contradicting it (ibid). Thus, while a political project for a city might claim for certain political ideals, based on imaginary relations to their real conditions of existence, the everyday practices of regulations and punctuated juridical decision might act otherwise. This contradiction reinforces the need to look not only at ideas about space but to pay careful attention to the intricate network of practices on space, working as 'lines of flight'[3] in the field of ideology.

Hegemony, a concept introduced by Gramsci to describe the role of the ruling class in building a new society, is considered by Lefebvre as useful for analysing the action of the bourgeoisie towards space. For him, "it is exercised over society as a whole, culture and knowledge, included, and generally via human mediation: politics, political leaders, parties and also a good many intellectuals and experts. It is exercised, therefore, over both institutions and ideas." (Lefebvre, 1991, p.10). Hegemony is therefore similar to Althusser's descriptions of dominant ideologies, as it is exercised by a specific group over other, mediated by politics and discourses. For Lefebvre, it is not conceivable that the exercise of hegemony leaves space untouched, as space cannot be solely the passive locus of social relations. The same goes therefore for dominant ideologies, which eventually get translated in space production. However, state apparatuses have increasingly been competing with other forms of hegemonic institutions such as religion, family, culture and greatly to media and capital either sustaining the dominant ideology or, more rarely / less visibly, contrasting it. Thus, in urban history, it is not only the State that conceives and makes the city through its plans and converging actions. Its materialisation is

instead a collective construct of either dominating or conflicting ideology and, more importantly, a result of habitus.

Habitus, a concept developed by Bourdieu, is a product of the unconscious, this immanent law, "that goes without saying", because "it comes without saying". As he explains, they are "systems of durable, transposable dispositions, functioning as principles of generation and structuring of practices and representations, which can be regulated without meaning obedience to rules." (Bourdieu, 2013, p. 72 [1977]). Practices become durable and transposable through habitus as they tend to reproduce series of moves that are organised as strategies without being the product of strategic decisions. By making itself present in practices, this system of dispositions works like "a past which survives in the present and tends to perpetuate itself in the future" (ibid, p. 82).

The author observes that even if practices follow a stated project or plan they are only apparently determined by the future. He explains: "always tending to reproduce the objective structures of which they are product, they are dominated by the past conditions which have produced the principle of their production, that is, by the actual outcome of identical or interchangeable past practices, which coincides with their actual outcome to the extent (…) that the objective structures of which they are product are prolonged in the structures within their function" (2013 [1977], p. 72-73). This explains why so often governmental plans and projects keep on reproducing the past instead of being able to invent new futures, precisely because the objective structures that originate such practices have not changed.

Those are produced according to a determinate condition of existence, commensurate with the economic and social necessities to which they belong, and follow therefore their own objectivism. As such they are dominated by their past conditions, being reproduced throughout generations without following a rational basis. If it is so, how do we explain gradual social changes or even ruptures in the course of history? Those are feasible because habitus is as much durable as it is transposable. It is not merely mechanical repetition, but it is subjected to changes guided by approval or disapproval, conditioned by one's material conditions of existence. When the environment in which systems of practices are produced become too distant from the one in which they are experienced, making small adjustments impossible, conflicts are liable to occur. The disputes are not only of age but mainly of classes.

Supported by Weber, Bourdieu argues that "juridical or customary rule

is no more than a secondary principle of the determination of practices, intervening when the primary principle, interest, fails" (2013 [1977], p. 76). Therefore, it is not that practices are obedient to rules, but often the other way around. If we consider the meaning of the word rule as something that goes beyond law and includes social norms and theoretical models, the rule can also be defined as a principle immanent in practice, more implicit than unconscious. It is the set of principles, or rules, that precedes law, and not the other way around. Reflecting on the juridical dimension of the urban, one might consider if some of Belo Horizonte's historical urban regulation might not have been only in line with state apparatus and its ideology as it might appear because of its known connections, but might follow, instead, habitus, namely, strategic interest. Following Bourdieu's logic, this happens because the established systems of practices are predominantly not connected to ideals or representations but in fact to objective necessity which relates to the real conditions of existence instead of imaginary ones. Therefore, despite the expected interconnections between dominant ideologies and state apparatus actions, the examine of the laws, rules and state actions in Belo Horizonte's spatial history, will be also scrutinised through the perspective of habitus. The relatively long timeframe embraced in this episodic history –in terms of Brazilian urban history at least – is what might allow the grasping of habitus, once certain have shown to be enduring despite the change of actors, place and time.

Although it might be confused with 'social customs' or even 'culture', habitus is not expanded to all society but is particular to groups and communities. Within specific groups and classes, the regularity and objectivity of actions are a result of their homogeneous objective conditions. Despite resulting from the inculcation of harmonic objective structures - it is through inculcation that ideology finds its way into being formulated as practical schemes and later constituted as principles -, the habitus presents a degree of subjective diversity once interiorized by individuals. This means that while actions of different subjects might seem divergent in appearance, they can belong to the same structuring principles regulating practices inside a homogeneous group or class. This heterogeneity within homogeneity requires a more profound understanding of practices, being able to transcend the identifications of actions themselves, identifying the structuring principles of such practices. The method of Bourdieu proposes for this in Theory of Practice is to move from *opus operatum* to *modus operandi*, namely, from the products of practices to their generating processes.

Like Bourdieu, this research is not solely interested in grasping practices,

but mostly their generating principles. Instead of finished products, practices must be seen as relational processes in constant change even if their structure is similar. To achieve this goal, the historical approach becomes of extreme importance. Looking retrospectively on the history of Belo Horizonte, the concept of habitus will be essential for identifying - under the shadows of urban models, plans, projects, ideologies - durable systems of practices that are equally, if not more, responsible for constructing the city.

Although ideology belongs to the realm of ideas and habitus to the realm of practices, being both therefore intangible realities, they are the ones guiding actions towards space, transforming it materially. Hence, the analysis of Belo Horizonte's episodes will look specifically at the ideas and practices which have resulted in significant spatial transformations from the point of view of urbanization, which is our main focus. Thus, it has prioritized exposing and analyzing the major investments done for urbanization over the everyday practices. Although one must recognize that people's everyday moves have also an important role in the social production of space, those are less evident, more difficult to perceive (specially in a historical perspective) and usually less durable in terms of physical materiality. As one of the aims of this research is producing also a visual narrative through cartography and images, it is important to focus on practices that can be visually verified.

This leads to the construction of the third interpretative lenses, the one of investments. Be by the State of by private sectors, the space of the city is transformed by a combination of investments, which can be the construction of urban infrastructure or buildings, the implementation of projects, the formulation of laws, the elaboration of projects, etc. Thus, investments are not measured in financial terms, but more generally by the amount of efforts directed to actions that have resulted in spatial transformations, especially those which have served as turning points in Belo Horizonte's urbanization *modus operandi*.

The choice for investments as a lens comes from the understanding that the history of any urban settlement is intrinsically tied with a history of big or small investments that enables its materialization, coming from the State, private companies or from individuals. Founding new settlements or expanding existing ones requires capital investments and human labor in several fronts, which scales will depend, usually, more on capacity than on necessity. Planning and building a new city from scratch requires of course greater amount of instantaneous investments, which come largely from the State but not exclusively. Limited by capacity, a State will invest

primarily on the basic elements to found a city while others will come gradually by either new waves of State investment or by the contribution of privates. In the case of Belo Horizonte, to inaugurate the new capital of the state required first a railway connection, then the partial laying out of its grid, in which piped water and sewage networks were aggregated, and finally the construction of the administrative buildings and housing for its staff. In time, other and more complex everyday infrastructural landscapes were superimposed in the city.

As this thesis is interested less in the conceived spaces than in perceived spaces, it is interested less in the plans for the city and more in the factual investments put in motion for its construction. More specifically, it starts with the assumption that investments are the mediators between the conception of spaces and their materialization. Understanding investments as mediators, the role of infrastructures are particularly important within those, since "mediators through which the perpetual process of transformation of nature into city takes place" (Kaika & Swyngedouw, 2000)). In '*Splintering Urbanism: networked infrastructures, technological mobiles and the urban condition*' Graham and Marvin (2001a) have exposed the important role of infrastructure networks in shaping the increasingly splintered contemporary city, but also retrospectively, as a fundamental actor in the historical formation of all cities.

Acting on the landscape, infrastructural investments are the means through which nature gets commodified into urban services, with added use value and later exchange value. Through investments in ground extraction and manipulation, soil gets transformed either in minerals or plots. When the latter are added with piped water, sewage network, street trees and the proximity to other urban services, their values start to enter into waves of speculation, boosted by infrastructure. In this process, the unequal distribution of infrastructural investments creates also social asymmetries across the territory.

By looking specifically on infrastructural investments, the thesis aims at grasping not only the material transformation from nature to city, but also the layered social processes involved through and from its material legacy.

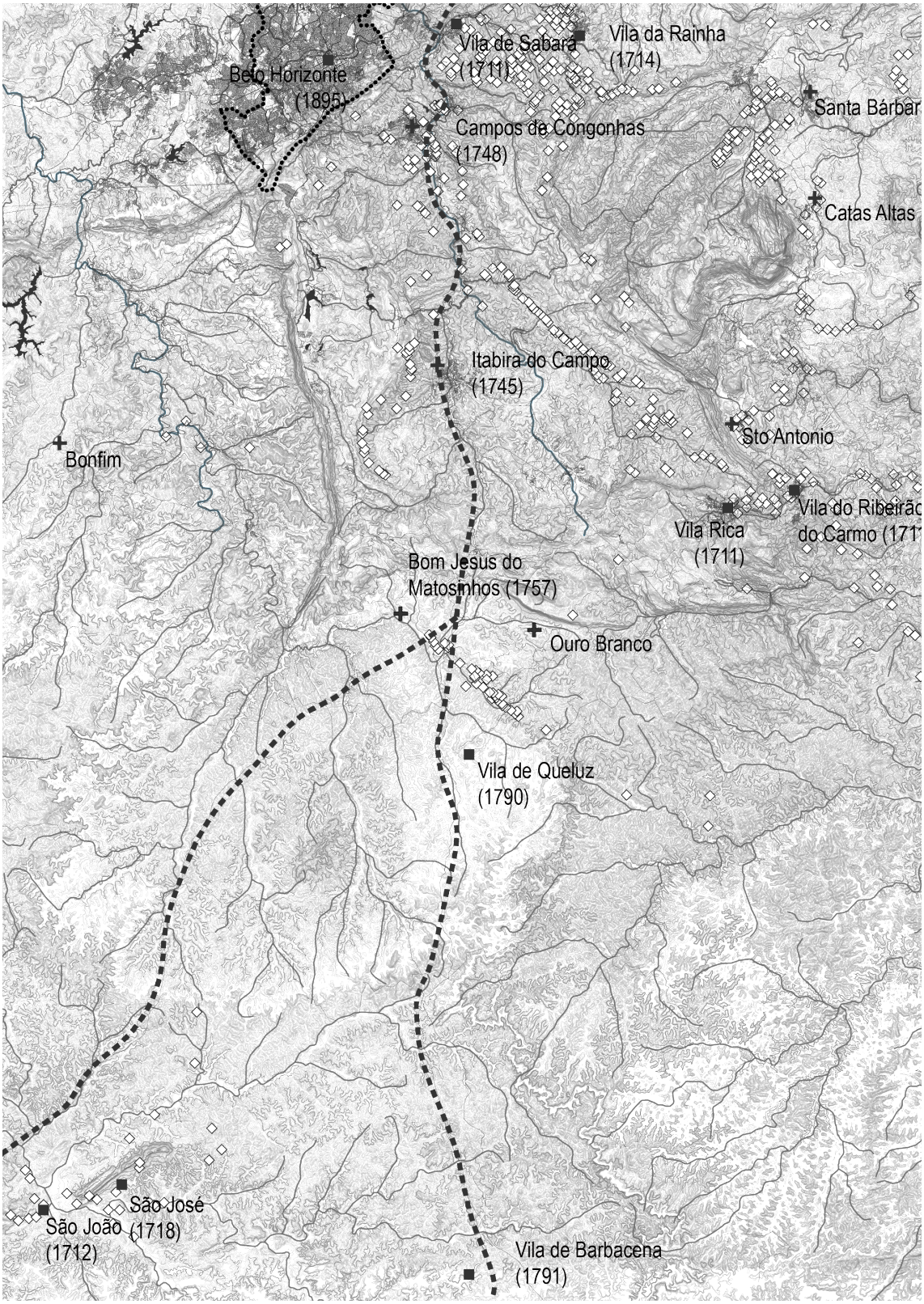
In order to bring forward the processes involved in the historical construction of space in Belo Horizonte, I propose therefore specific interpretative lenses to structure the analysis, which are 'Embedding in nature and constructing landscape", '' Urban as a constellation", and ''Investments". The focus on these analytical angles is proposed as a strategy to highlight specific patterns and processes, persistent in each episode. This

approach allows in-depth reflections on the different processes involved in the transformation of this territory. Although grouped by 'themes', the events, processes, approaches and ideas presented are of course intrinsically intertwined in the materialization of the territory, so some overlapping might be expected.

Aligned with the hypothesis that common patterns of urbanization might be found, as long standing structural habitus, when looking at a longer history of urbanization in this territory, this episodic history will be anteceded by Belo Horizonte's pre-history. The analysis of the early forms of urbanization developed in Minas Gerais, under the perspectives above outlined, can already reveal special forms of spatial transformation that are intrinsically tied with significant ground transformations, through major investments in mining and urbanization and thus the formation of constellations of the urban, in relation to its complementary ingredients.

1.2.Ouro Preto, Nova Lima and the Colonial Mining Urban Network

In the first two centuries of colonial occupation in the Portuguese America a constellation of human settlements was formed mainly along the Atlantic coast - with exception of São Paulo de Piratininga and a few other small villages. Located at the cost, they functioned as strategic military defence from invaders possibly attacking by the sea - as it has been once the case with the Dutch and the French, and as outposts for the colonial extractive activities. The coastal villages established little relation with the inlands, while the communication between them was done through the sea, presenting less challenges, for the Portuguese settler, than the alternative of traversing the dense vegetation and being surprised by natives[4]. At first, the management and control of the immense territory was through the rough division of the territory in a system of *Capitanias Hereditárias* (Hereditary Captaincies), long stripes of land that ran in the east-west direction departing from the coast. The exploration of the land, first with the extraction of wood and gradually with the cultivation of sugar cane and cotton was done almost as a private enterprise, with little interference from the Crown (Resende & Villalta, 2007). In the end of the 17th century, as an economic crisis hit Portugal, expeditions were intensified in search of the promised gold, already found in other parts of the continent, largely sponsored by the Portuguese Crown (ibid). Particularly important to discuss the urban network in the state of Minas Gerais were the initiatives


Vila de Sabará
(1711)
Vila da Rainha
(1714)
Belo Horizonte
(1895)
Santa Bárbar
Campos de Congonhas
(1748)
Catas Altas
Itabira do Campo
(1745)
Sto Antonio
Bonfim
Vila do Ribeirão
do Carmo (171
Vila Rica
(1711)
Bom Jesus do
Matosinhos (1757)
Ouro Branco
Vila de Queluz
(1790)
São José
(1718)
São João
(1712)
Vila de Barbacena
(1791)
18th cent. roads
B.H. municipal limits
Water
gold
village/city
hapel/church
urban mesh
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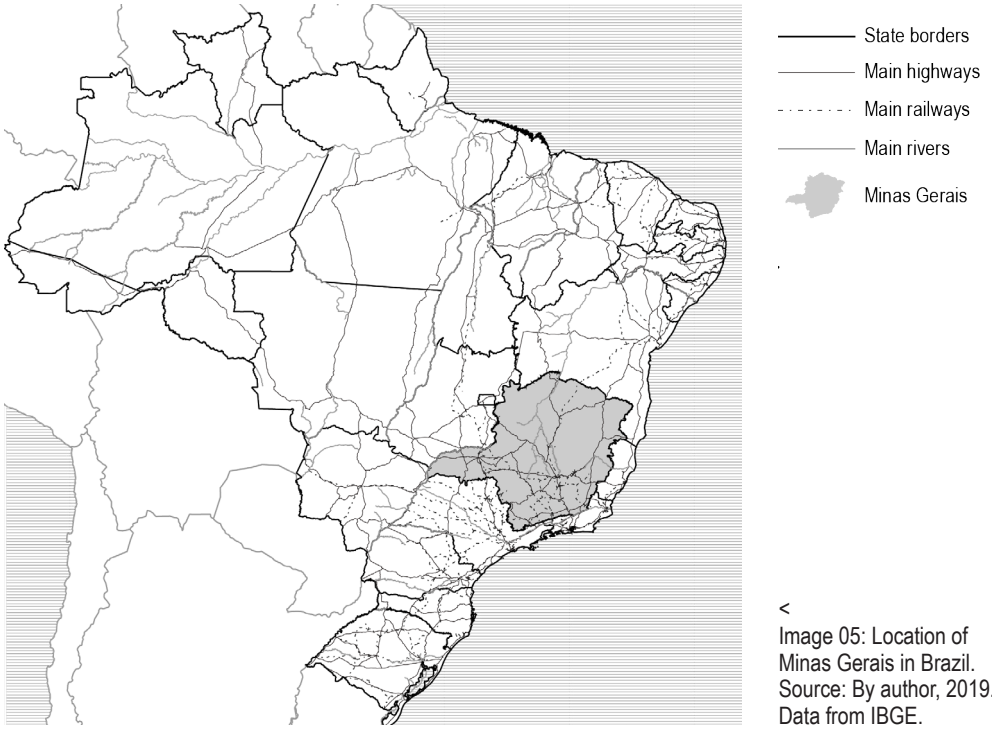
carried by the *Paulistas* - the inhabitants of the Capitania de São Paulo - with slaved natives in a movement known as *Bandeiras*, accounted as responsible for the wide territorial expansion under the domain of the Portuguese Crown. Some of them were private adventurers while others were sponsored by the Metropolis in the search for the *Eldorado*. Until the end of the 17th century, the very few paths that crossed what today is Minas Gerais served primarily as a passage facilitating the trade between the cattle going north from Capitania de São Paulo and the sugar, cotton and other goods traveling south from Bahia (Moraes, 2007).

The research of the historian Maria Efigênia Lage Resende (2007) highlights the importance acquired by the paths of Minas Gerais after the discovery of gold, as the main structurer of Brazil's territorial occupation and therefore metropolitan control over the colony, with attention to their political-strategic dimension added by the mining activity. Supported by archival documentation, the author points that the first occupations formed along this path where on the Sertão dos Cataguases, on the first mines found along the Nossa Senhora do Carmo and Ouro Preto creeks. The news that in this region gold could be found in any direction taken, lying in the origin of the term 'general mines', attracted the influx of thousands of people to the region after the discovery of gold in 1693 (Moraes, 2007; Reis Filho, 1999; Resende & Villalta, 2007).

As a very diversified population flooded the mines and large number of hands were needed for the gold extraction, repetitive famine crisis hit the area in 1699-1700-1701, which, in combination with the instability of the mining cycles, induced the productive diversification found in Minas Gerais (Paula, 2000). Besides the dominant mining, also agriculture, cattle raising and diverse manufactures developed in the region, as necessary means of survival, given the limited technology and mobility at the time. Recent research also reveals the existence of the "Mixed Farm" combining simultaneously gold mining and agriculture, sharing the same slaves (ibid, p. 63). The diversification of the economy is a result of a combination of pure necessity and isolation. As the paths leading to the mines where closed - for better control of gold trafficking - allowing only cattle, the transportation of materials through the sea became difficult and expensive, instigating the production of goods and the mushrooming of small manufactures. Besides that, mines where usually in places of difficult topography - a general characteristic of Minas Gerais - another impediment for accessibility (Resende, 2007).

The diversity and therefore resilience developed by Minas Gerais' economy - having gold and diamond extraction as the nucleus of a dynamic

< Image 04: The 17th century gold path, the gold deposits and the settlements. Source: by author, 2019. Data from CPRM and Lage, 2007.



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Image 05: Location of Minas Gerais in Brazil. Source: By author, 2019. Data from IBGE.

market - is one of the main arguments of Paula (2000) for considering its society intrinsically urban. Quoting Max Weber, the author points to the economic dimension as essential for characterising a City, as it should host diversified industrial activity - and contemporarily also the tertiary sector -; have the capacity to polarize regular markets, attract income, wealth and populations, creating urban networks and hierarchies. For him and also for Moraes (2007) the colonial network of villages, towns and settlements embed all the characteristics of what is considered urban - obviously when contextualised in its time and place, considering the other forms of territorial organisation present in the colony, such as the large farms of sugar cane and cotton of the north The combination of mining with the food and services markets characterizes Minas Gerais network of mining towns as proto-urban (Paula, 2000).

However, the unprecedented sprouting of human settlements is of course the main indicator of urbanity in the colony. The first village known to appear was Antonio Dias, named after its first miner who founded the first *Bandeirantes* nucleus in 1706. Very soon after, the village of Villa Rica de Ouro Preto (today named Ouro Preto) emerged next to it, and due to its prosperous development directly related to gold extraction, it was subsequently elevated as the provincial capital, becoming later one of the main urban poles on the eighteenth-century Brazil. The difficult paths crossing mountains and rivers connecting Minas Gerais to the port in Rio

de Janeiro in the south and to the agricultural colonies of Bahia in the north brought miners, traders and slaves in one direction and gold in the opposite.

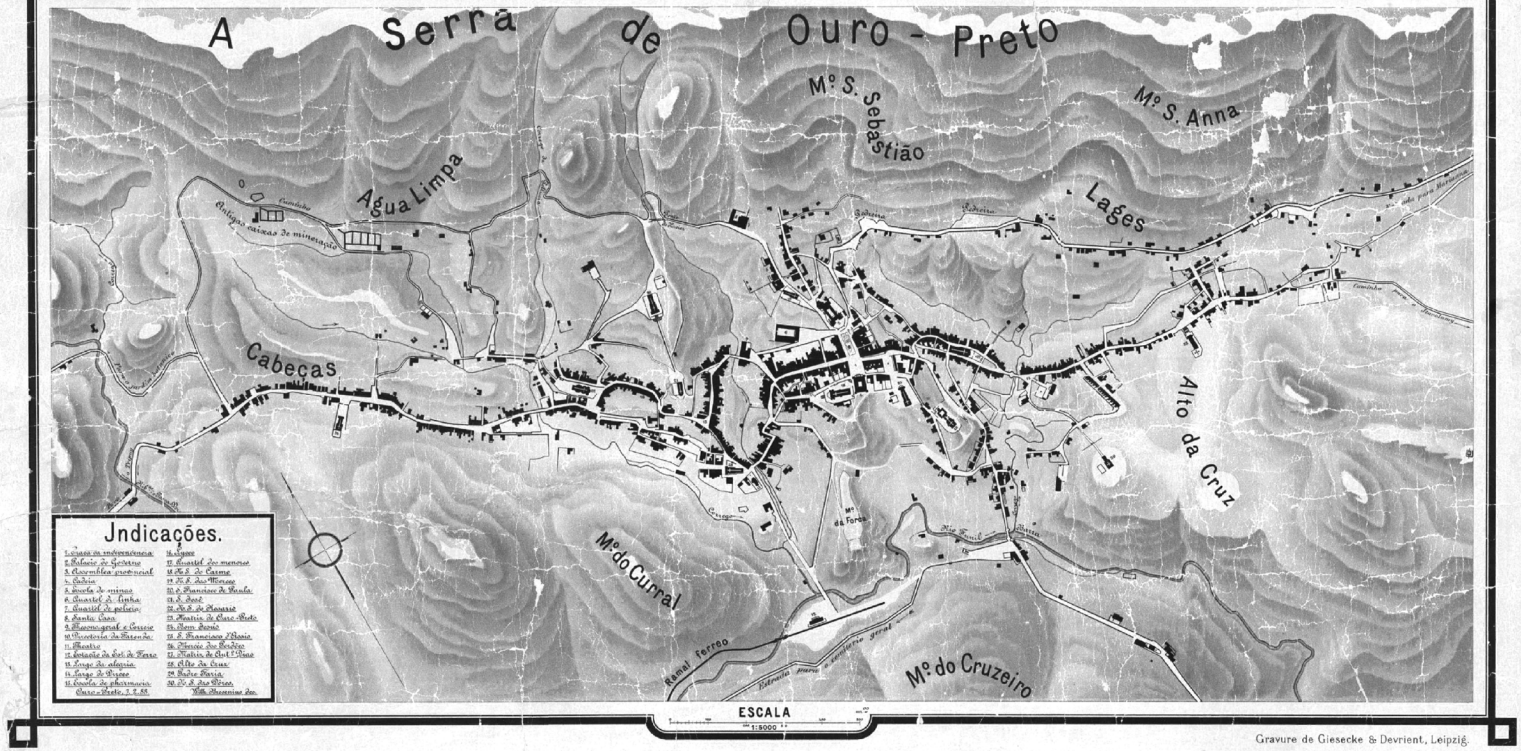
As Villa Rica prospered, the city came to occupy the sequence of small hills and narrow valleys around the Ouro Preto river, surrounded by mountains (see Image 06). The organisation of its space follows what Panerai (2006) has described as "the path and the hill" in which the urban form seems like a succession of roads along which the urban tissue is organised. In steep topographies, these cities follow the ridge lines, the valleys, flaking the canyons. Still according to him, this form of urbanisation configures itself in fingers punctuated by monuments in key points of the topography. This form, rapidly acquired in Villa Rica can be seen as a tropical interpretation of the typical Portuguese settlement.

It is noticeable here the formation of what Fernanda Borges de Moraes (2007) has called a urban network of colonial mining towns, which is organized along the paths, hills and, mainly around the mines. It is organized therefore, according to a certain infrastructure established, in the first place in function to the mining activity and secondarily for human settlement along with other parallel economic activities.

The Baroque architecture developed throughout the eighteenth century presents a unique character and richness not seen in the antecedent or contemporary models coming from Portugal and Spain. As Paula (2000) has pointed, the Baroque religious architecture in Minas Gerais had its own colour, not being the usual expression of the interests of Absolutism and Counter-Reform, but the expression of creative freedom (Machado, 1973 apud Paula, 2000). As traditional religious orders were forbidden to act in the region, religion was practiced largely by laymen through fraternities and brotherhoods, creating a parallel system of societal organization. These part-religious, part-civil social organizations – called *ordens terceiras* - acted actively in the organization of civil construction and the construction of religious temples, serving largely as instruments for urban expansion in many Brazilian cities. Without the control of religious orders, such fraternities had the liberty of building their own chapels in elevated areas outstanding in the landscape, competing with the governor's palaces, Chamber Houses, with direct interference in the organization of landscape. (Reis Filho, 1999, p. 13-14) Thus, the urban architectural monuments of the time, the religious temples, and the control of civil construction, in the sense of guaranteeing a harmonic landscape, was largely engendered by the civil society already in colonial times (ibid).

PLANTA
DA
CIDADE DE OURO-PRETO.

Organisada por ordem do Exmo Sr. Dr. Luiz Eugenio Horta Barbosa, Presidente da Provincia.



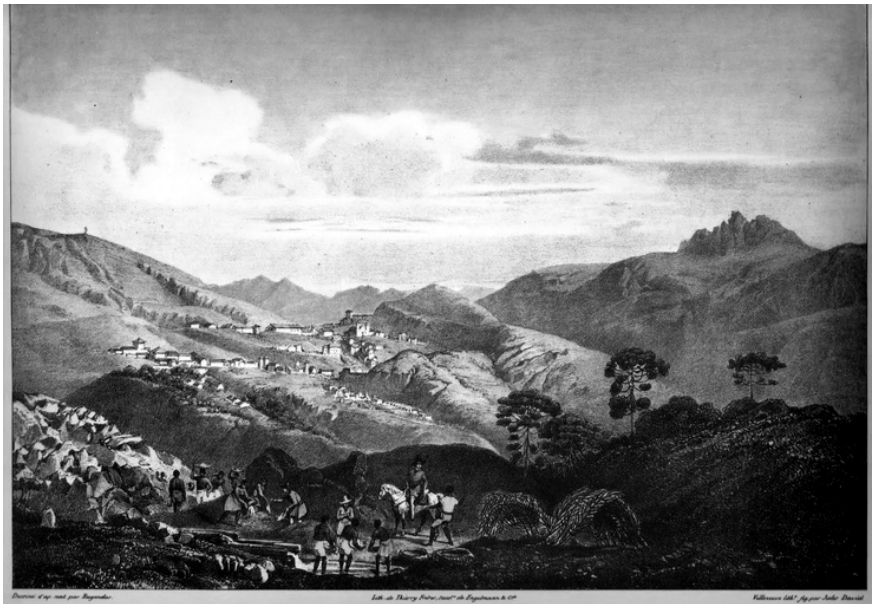
Gravure de Giesecke & Devrient, Leipzig.

The virtual isolation of the mines also contributed to the development of this freedom of critical creativity. Despite the physical isolation of Villa Rica de Ouro Preto, Paula has also pointed to the astonishing level of cultural and artistic activities there practiced as to configures a real cultural system. For example, the first Opera House to be constructed in the colonial America was in Villa Rica in 1769. The great master of Baroque painting and sculpture Antonio Francisco Lisboa, known as Aleijadinho was a *mulato* (mixed race), as was also Lobo de Mesquita, a great eighteenth century composer, conductor and organist. Therefore, the conditions present in the mining colonial towns, Villa Rica being its most emblematic example, have contributed to the construction of a diverse urban realm, a place of difference and cultural meetings, as Lefebvre would have defined. Their virtual isolation simultaneous to being highly connected internationally by the constant influx of outsiders have contributed to his great cultural prosperity along with mining prosperity.

High demographic growth accompanied by urban expansion are undoubted expressions of the unique urbanity found in Minas Gerais, which held the largest population of Brazil during the eighteenth and nineteenth century. In less than two decades of gold rush, a testimony written in 1711 estimated the number of people involved in mining around thirty thousand. Seventy years later, the population experienced a ten-fold increase, reaching 319.769 by 1776 (Moraes, 2007, p. 64). Besides the demographic explosion, the first half of the century also witnessed an unprecedented ascend of villages (*Villas*) in the gold area, which reflect not only the urban and demographic expansion but a necessity of control of the territory and the mining tributes by the Metropolis. Following Portugal's political-administration system, being elevated from a simple settlement – named *arraial* or *freguesia* – to Village status meant also the instalment of a local Chamber with its own Ombudsman, representing the Crown justice at local level[5]. Therefore, when compared to other human settlements of the colony in the same period, it becomes evident that the unseen urban network here constructed has a direct relation with its extraction activities and was only possible thanks to it.

It is worth noting that, during the whole colonial period, only one settlement in the region of Minas Gerais received the City status, Mariana, while Villa Rica, the most prosperous, remained as a village despite being the colonial and later provincial capital until the transference to Belo Horizonte in 1897. Its elevation was not due to its importance, centrality or urban density but followed internal religious politics since being a city was a precondition of hosting a bishopric. Being an inhabitant of a city

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Image 06: Plan of Ouro Preto. 1888
Source: APM



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Image 07: Vila Rica. Author: Rugendas, circa 1835. Source: Biblioteca Luso-Brasileira, edited by author



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Image 08 Vila Rica. Author: Marc Ferrez, circa 1890. Source: IMS, edited by author

resulted also in receiving a series of special privileges, which included being allowed to carry knifes. Therefore, for the Portuguese crown, it was essential to maintain the local powers as limited as possible, politically able only to maintain relative order and assure the charging of taxes, while the decision making and political privileges were centralised in the Metropolis (Moraes, 2007).

The constellation of *Villas*, captioned by Mariana and Villa Rica is related not only to the proper distribution of power and surveillance across the territory but also to the patterns of occupation, which, in this case, are directly related to the logics of the gold extraction. Found in abundance in the many small rivers of Minas Gerais, the presence of alluvial gold meant the flourishment of highly fragmented and diversified activities. Holding a mine concession – that is, an authorization by the Crown to explore a discovered mine - could mean from camping at a prosperous curve of the river, alone[6] with two or three slaves to larger pieces of land crossed by rivers with a large group of slaves. The concentration of large amounts of gold in a relatively small territory (if compared for example with the sugar cane plantation in the north) meant also the fragmentation of land possession and control[7], which has as a direct consequence an also fragmented urban development. Wherever there was a mining camp, it would soon develop in a human settlement, hosting houses, small manufactures, and food markets. As the French naturalist Auguste Saint-Hilaire (1830) has observed, a century later, the word *arraial* has, in Minas Gerais, diverged from its original meaning which is a sort of 'camp' or temporary market. In the mining land, camps soon became permanent, changing the meaning of the word into something like a settlement, a small village, however not acquiring such a status, therefore neither all the administrative apparatus and privileges.

The form of the Portuguese American colonial towns has been described by Sérgio Buarque de Holanda (Holanda, 1936), in the classical '*Raízes do Brasil*' as being a result of improvisation when compared to the grid model systematically applied in the Spanish America. In the opinion of Reis Filho, this sort of comparison contrasts the elaborated and highly urban forms of occupation in the hinterlands of the Spanish America, where the mining activity was developed earlier, to more precarious forms of coastal settlements in the Portuguese America, where rural forms of life predominated. However, during the 18th century, with the extension of mining areas, the character of settlements in the Portuguese America changed drastically. (Reis Filho, 1999, p. 7) This sort of comparisons are also related to urban form, the geometric grid found in Spanish American



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Image 09: View of Ouro Preto.
Source: Raquel Braga, 2018, edited by author.



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Image 10: View of Ouro Preto.
Source: Raquel Braga, 2018, edited by author

colonies in contrast to curved streets found in many of the Portuguese colonial settlements, especially in the mining region. As pointed by Reis Filho, the application of a regular forms – such as the grid - in the mining colonial towns was a sort of irrationality due to its undulated topography[8]. (ibid).

It becomes evident therefore that the developed patterns of eighteenth-century urbanization in Minas Gerais are directed related to the mining activity, the main mode of production that served as their impetus. As described above, some of their main characteristics are: population density, hierarchy, polarisation, complex network of exchanges, economic diversification, social diversity, fragmentation of land, cultural and artistic developments (Paula, 2000; Reis Filho, 1999b).

According to the analysis of Paula (ibid), it is possible to assure, without committing severe anachronism, and on the basis of the arguments here put, that mining towns such as Vila Rica and Mariana, with such social and occupational diversities and economy dynamism, can be described as early forms of urban realms. Also in the analysis of Reis Filho (1999), the new form of colonization established with the mines was highly urbanized. During the 18th century, the large population living in the mining areas implied a bourgeois-like life style, very different from the character of the areas with an agricultural exporting tradition.

There was, until the 1970s, a gap within the historiography of urbanization in Minas Gerais between the second half of the 18th century and the early 19th century (Paula, 2000; Reis Filho, 1999b). The history of the everyday life of Minas Gerais' numerous villages with abundant population during period did not attract much attention, after most of the (superficial) gold and diamonds had been extracted and paths had been open, creating a structural basis for the territorial expansion in the colony - from those paths departed the paths towards the west, Goiás, where more gold was found. According to Reis Filho (ibid) this is due to the fact that most of the Portuguese historical documents on the mining regions of Minas Gerais and Goiás were concentrated to the mining activity and started to fade with its decline from the middle of the eighteenth century (ibid). On the other side, while the gold economy declined, the capital accumulated around this urban network of mining towns was directed towards investments in agriculture, which means that Minas Gerais and its villages continued to prosper thanks to its capacity to diversify its economy. It is probable that this lack of documents points to high degrees of economic autonomy from the metropolis, which circulated mostly internally rather than a decline.

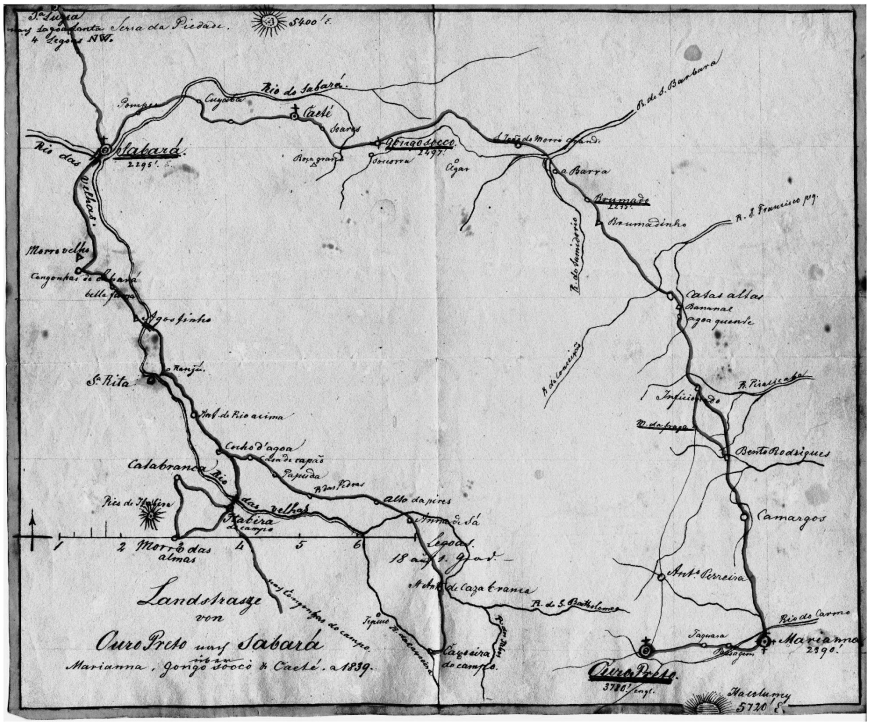


Image 11: Travel of Ernst Hasenclever through Minas Gerais
Source: Alves, 2014



Image 12: Ouro Preto circa 1867-1890
Source: APM

In 1808, when the monarchy seat was transferred to the colony, the ports, which had been closed since the golden period and French attacks (1710-11), were reopened for foreigners leading to a great influx of visitors, curious to see the vastness and wilderness of those lands. Many of them produced travel logs, cartography and drawings which have become one of the main sources of nineteenth-century Brazilian history. However, some of them who visited Minas Gerais have contributed to build an image of decadence in the region, as they described a certain astonishment to what they saw in Minas Gerais. Surely, after a century of obscurity in which only romantic legends about the *Eldorado* and of gold and diamonds in a land of green wilderness[9], the imagination of foreigners flourished with images of prosperity, fertility and luxury. Instead, along the nineteenth century, what was reported in the land of the mines was the existence of a revolved ground and an impoverished population. Revisiting this travel literature allows the assessment of the general picture drawn of Minas Gerais in the nineteenth century, as well as a general sense about its geography, without ignoring the personal bias underlined in the reports.

The first travel log to be here revisited is the one of Auguste Saint-Hilaire (1830), a French naturalist traveller and explorer of Brazil's hinterlands. Unlike Humboldt, a contemporary explorer of South-America, he did not leave similar cartographical treasures. However, his extremely detailed descriptions offer rich understandings about the landscape, nature and culture found in his travels around 1817-1818, underlined by his personal views, impressions and expectations. Traveling through the Estrada Real, from Rio de Janeiro to the gold lands, Saint-Hilaire was positively surprised by the landscape encountered after overcoming the mountain ridge running parallel to the coast. Expecting a monotonous plateau of pastures, he found instead a sea of green mounds, gracious forests and fertile ground in addition to the soil rich in diamonds, minerals and precious stones. However, some days later when he approached Villa Rica, his impressions are weighted by the feeling of melancholy. When descending its valley, the sight offered, according to him, a succession of turned-over ground, dug for gold extraction, absent of vegetation, heaps of gravel scattered here and there giving an air of sadness to the landscape. Without question, the scenery of mining was a shocking view, when compared to the exuberance found in Rio de Janeiro, the only other urban scene he saw in Brazil. What Saint-Hilaire did not consider, was the transitory dimension of productive landscapes, especially in the case of mining. Some years later, when other travellers passed by the image had naturally been transformed already.

Reaching the village of Villa Rica, nestled between two mountain ridges

and unevenly occupying four hills, this sentiment of devastation endured. Perhaps the particularity of the local climate has influenced his impression: more humid than the surroundings, with an almost ubiquitous fog. A scenario of mountains that advance and retreat dominating the village, old houses badly conserved and a feeble commerce have also contributed to Saint-Hilaire's melancholy. He found it extremely difficult to give a precise idea of this very irregular village but nevertheless made an attempt to describe it as having been built over a long sequence of hills bordering the Rio Ouro Preto, some advancing others retreating, some of them too steep to have houses on and with a poor vegetation and big excavations. According to him, the sole reason for the foundation of Vila Rica in such locality was the great amount of gold found: it would have been impossible to choose a less favourable location, in face of such a difficult topography, dug in a cool and foggy valley. Overall, the images of mining and sterile soil seemed to really strike Saint-Hilaire.

In the late 1860s, around half a decade later, Richard Burton, another traveller and writer, describes Vila Rica's morphology and buildings in a much similar way, but with a more positive gaze. In his text, he disagrees with the decadence described by another traveller in 1829, "and which made travellers declare that Villa Rica had become *Villa Pobre*"[10] (Burton, 1869a, p. 354), although he still offered harsh descriptions and criticism on its lack of infrastructure and book shops, particularly. For him, the most impressive aspect of Villa Rica, which he considered as a "straggling and overgrown mining village", was the amount of shapeless curves and narrow streets. He compares the city's morphology with the new settlements in Brazil characterised, according to him by "the right-angled parallelograms, so offensive to the warped eye of the European traveller". However, he recognises that the curvature and narrowness of its streets presented their challenges. In his words:

> *"Amongst the many disadvantages we may observe that carriages cannot be used, and that even riding is not safe in the city; there is no ground for expansion; the streets are too narrow for rails and the country is unfit for the iron horse."* (ibid, p. 358)

Also, for him, fifty years after Saint-Hilaire, the mining activity was still something remarkable in the panorama, characterised by hills and reminding of the gold, because everything had been turned over and removed by the *mineiro*s. He finishes the first part of his report on the village with "the sooner another site for a capital is found the better, but it is not easy, I have already said, to point out a central locality suitable for the purpose". (ibid)

One of the most expected moments of his travel was his arrival to the Mina de Morro Velho (in today's Nova Lima), ran by British compatriots, referencing it many times as the 'Company', short for 'English Company'. While approaching the mine, after crossing the Rio das Velhas he oversees the village of Congonhas (short for Vila de Nossa Senhora do Pilar de Congonhas do Sabará, today Nova Lima) "whose site is an irregular mixture of bulge and hollow, sprinkled with church and villa, with garden and orchard, and beautiful with its threading of silver stream." (ibid, p. 193). When arriving at the town, his impressions show that the decay many times pictured was not a ubiquitous scene:

> *"Congonhas* [today Nova Lima] *has been cured of the* 'decádence et abandon' *in which St. Hilaire found it forty-seven years ago. Built by mining, it fell with mining, and by mining it has been "resurrected".* (op. cit. p. 195)

While compiling general notes on mining in Brazil, Burton regrets the conservative view of previous Brazilian travellers, such as Saint-Hilaire, transparent in their negative view towards gold mining and, in their interpretation, consequential ruin and decay. He takes side with Brazilian writers[11], who considered mining one of Brazil's twin-pillars, attributing the decay of "mushroom mineral settlements", in his words, to the lack of proper technology and physical science, combined with a destructive political system. Interestingly, here Burton forecasts that the exploitations of gold and diamonds has just but commenced in Minas Gerais, and indeed in all Brazil (ibid). Burton's predictions were not entirely truth, nor entirely wrong either. In fact, gold and diamond extraction has never again been so predominant and prosperous but indeed, mining - of all sorts of minerals, but mainly iron-ore - has continued to be the main economic activity in the country until today.

In sum, Burton's reports while traversing Minas Gerais offer contradictory but complementary views of prosperity and decay, amusement and deception, criticism and praising. If seen in perspective, the portray pictured by his and other documents is of a relative decay in some areas, balanced by prosperity on the others, pointing to the tendency of finding relative equilibrium, typical of dynamic and resilient economies and a reflect of the itinerancy of the mining activity, having different regional rhythms.

While mining had been exhausted in Villa Rica, it was flourishing at Morro Velho (where today is Nova Lima) and it is, until today - however of iron ore - the main source of income of the municipality of Marina, to which

it is totally dependent. It is truth that gold mining never again reached the same proportions in Minas Gerais. However, the decadence of this activity has been paired with the growth of the agricultural economy, gaining strength with the *Lei de Terras* (Land Tenure law) of 1850. From this point, the system of sesmarias (large portions of land given in concession to Portuguese men with noble titles) was abolished and the private property of land was for the first time (formally) allowed as well as its commerce. With the new law, the land not yet duly occupied and productive would become property of the State, while the ones already cultivated and in which exploitative concessions laid became private property. This allowed not only new forms of accumulation of capital by land possession but facilitated the invasion of foreign companies who bought large pieces of land.

However, much before that, diggings where already commercialised between miners regardless of land property, but in form of concessions. According to Burton's report, in 1824, the first English Company was established, known as Gongo Soco, or "Imperial Brazilian Mining Association", based in the then municipality of Caethé and bought from a local Baron. The sanction for the international partnership was given by the Imperial Government on 1824 on condition of receiving the annual tax named *"quinto"* - one fifth - the controversially high tribute charged since early 1700s[12].

In independent Brazil, that is, from 1822 onwards, the colonial economic dominance was therefore replaced by other forms of subjugation. As seen, in Minas Gerais this meant the extraction of (mostly underground) gold by foreign companies, British in the majority. Their influence was not only in mining but also in infrastructure, mainly in the construction of railways and in urbanization, as will be seen in Chapter 4 in the case of Nova Lima. In Itabirito, the accident in the mine of Cata Branca in 1844, where many were killed by the collapsing of a mining shaft became a well-known emblematic of the times of technological experimentations in very precarious slavery working conditions, that would repeat recurrently in history, however the change of technologies and social relations.

As introduced earlier in this chapter, the recent decades have seen a turn in the historiography of nineteenth-century economy in Minas Gerais, pointing to an economic dynamism instead of decadence and stagnation. Until the first part of the 20th century, Minas Gerais continued to host the largest population in the country, while underground mining develops alongside with the agriculture and manufacture production. (Paula, 2000)

It is important to notice that while the central region of the state, around the general mines, continued to have mining as a nucleus of a dynamic and complex economy that included agriculture, small industry and a significant tertiary sector, some other regions of Minas Gerais prospered in other economic activities, due to different soil and climate conditions. The historian João Antonio de Paula (2000) revised the latest studies contributing to the emergence of a new image of Minas' economy in the 19th century and summarised its main characteristics: 1) the presence of an important cattle breeding activity in the Rio das Mortes region (headed by São João del Rei, to the southwest), spreading towards Zona da Mata (northeast), the South and Triangulo Mineiro (west); 2) presence of textile manufacture spread all over the province, suppling the internal market and also exporting; 3) presence of a wide network of iron forges; 4) the presence of large mining enterprises.

Not only towns were emerging in a constellation of patches, but also were built in a constellation of arrangements between the powers of the church, the Crown, the local ombudsman and fraternities. Paths and mines served as the infrastructure giving impetus and at the same time as a connection in the territory. Investments in paths, mines and churches is what gave origins to settlements in the first place. After being set, their locomotive gave space for other activities, providing the human force as well as the capital for diversification. And all these transformations are done on the basis of, surely, deep transformations in its ground and underground, with the excavation of its soil, already turned-over by the second half of the nineteen-century. Sitting on mines, towns such as Ouro Preto and Nova Lima have embedded themselves in nature, extracting minerals and water from it and thereby transforming landscape profoundly.

Endnotes

1 Amongst the many authors which have developed theories around space, some worth mentioned for this research are: Harvey (1990), Jameson (1991) and Soja (1996) have approached the transformations on space in the view of the postmodernity and the transformations within capitalism. The works of Lefebvre (1991) and Gottdiener (1985 have focused on the social production of space, while the work of the Brazilian geographer Milton Santos (1998, 2002 and others) has conceptualized the idea of space, landscape and the actions of men in space. Cosgrove (1985), Waldheim (2006), Corner (1999a) and Berger (2006) have delved in the conceptualization of landscape, especially as conceptual tool for urban design.

2 a term used by Mignolo (2004)) for designating a plurality of sciences, rather than universality.

3 Deleuze & Guattari, 1987

4 Although the settlements were located mainly at the cost the colonial occupation and impact was not restrained to this territory. For more see (Reis Filho, 1968; Resende & Villalta, 2007)

5 The hierarchical system of settlements in colonial Brazil included, in a descending order: City, village, *freguesia, arraial.* While in cities and villages there was the presence of Portuguese administrators, the *freguesias* were usually areas under the administration / influence of a church and its designated priest. *Arraiais* were the smaller form of settlements, not necessarily having a church, normally only a chapel. The larger administrative area in this period were the *Comarcas*, which proceeded the division in Provinces (after independence) and the States (after the Republic).

6 The independent mine digger was known as the *'faiscador'*

7 Although land possession was not formally allowed before the *Lei de Terras* (Land Law) of 1850, concessions and allowances were distributed for those wishing to explore it, configuring almost as a property with full rights of use. These concessions were also often commercialised. Urbanised areas naturally belonged to the Crown, with concessions for inhabiting.

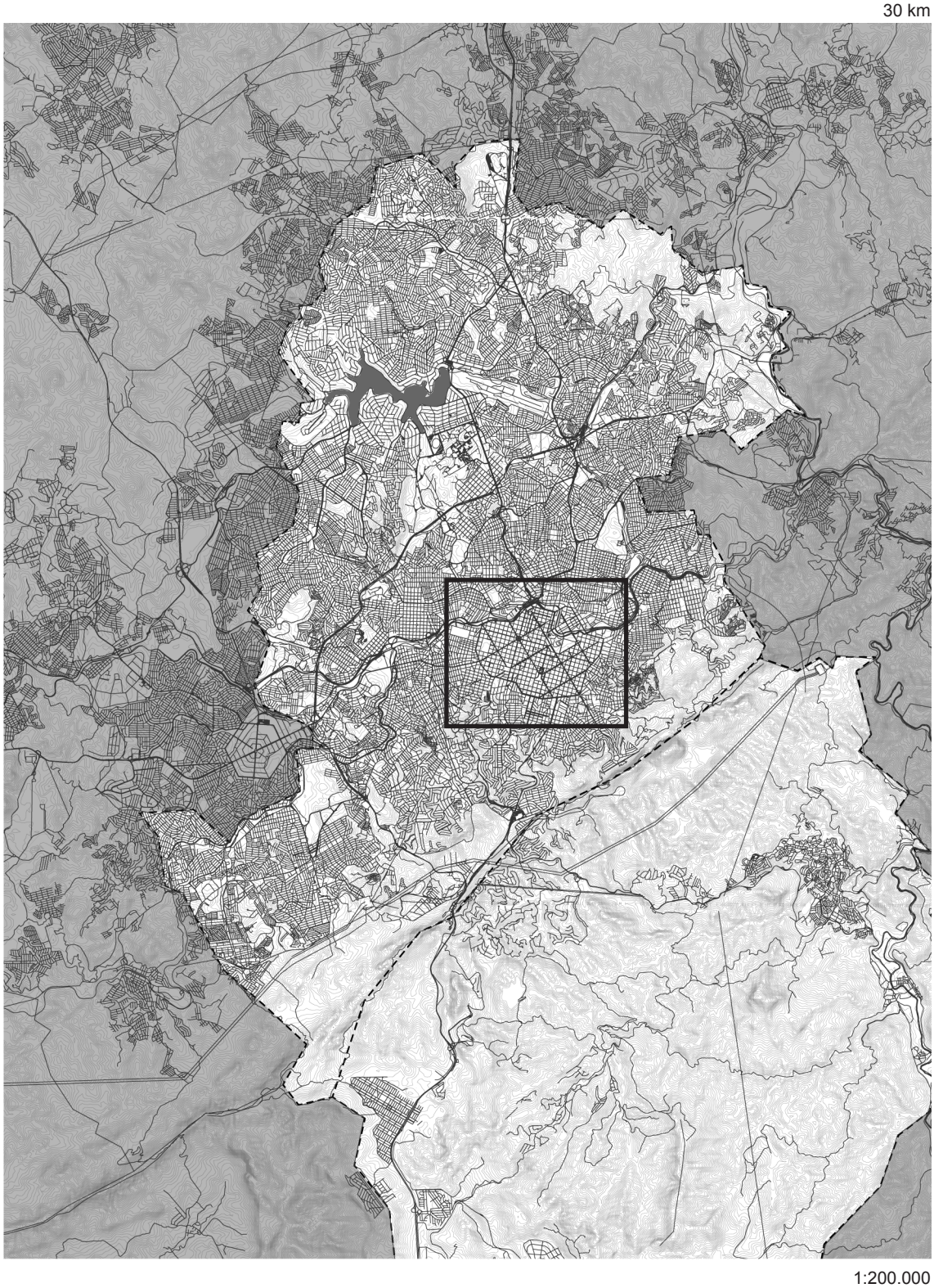
8 Exception is made to the city of Mariana, constructed around 1746 and 1747 according to the project of the military engineer José Fernandes Pinto Alpoim. (Reis Filho, 1999b)

9 See (Moraes, 2006b)

10 *Rica*, in Portuguese, means rich and *pobre* means poor, so the village went from a rich village to a poor one.

11 Unfortunately, Burton has not mentioned who those writers were, so the information could not be checked.

12 The *quinto* was the main motivation for the movement of the Inconfidência Mineira, the separatist movement of the 1750s in colonial Brazil. See more details in Chapter 2.


30 km
40 km
1:200.000

2

The Foundation of Belo Horizonte

This chapter will present the first episode of the thesis, with the foundation of Belo Horizonte. The unfolding of this event will be preceded by a brief history of the antecedents of its foundation, which includes the first attempts to move the capital, since the mid 18th century and the political process that finally led to the transfer of capital at the end of the 19th century. Then, the project and the materialization of the city in the first two decades will be approached through the interpretative lenses laid out in the previous chapter.

Besides counting on valuable secondary sources of Belo Horizonte's urban history, the research has been enriched by a variety of primary sources such as newspapers and State's official press documents from the period between 1893-1900, laws, decrees, photographs and cartography. Although the time and space given for this research did not allow for a complete revision of all publications of the time, the possibility of the digital search for terms such as '*Bello Horizonte*', *'Nova Capital*[1]' (new capital) and *'Mudança da Capital'* (transfer of the capital) has made the archival research doable. This was possible thanks to the rich and easily accessible online archives of the Brazilian National Library, the Biblioteca Nacional. This contribution allowed a diversification the sources of history and therefore the construction of personal interpretations. In these readings many facts, opinions and anecdotes were also absorbed and have contributed to the knowledge acquired on this event, even if they were not included in this final text.

The thorough analysis of its historical cartography has also allowed a better understanding of its plan and the city materialization, aiming to detach from secondary interpretations of it by building a more direct understanding. Moreover, the redrawing of some of it has allowed to reveal intentions and spatial relations which will be later exposed. An important approach to mapping was the overlaying of different maps from different moments, explaining better its materialization and the impact of some projects, decisions, procedures. Searching for the relations of the plan and city construction to landscape meant an emphasis in contrasting maps of streets and occupation with the topography and water

<
Image 13: Urbanized areas in Belo Horizonte and spatial frame of the first episode.
Source: by author, 2019

courses, themes usually excluded from cadastre maps. The combination of sections and historical photographs has also highlighted the dimension of the landscape manipulations in the city construction. The juxtaposing, comparison and combination of different cartographical material has allowed the construction of new maps, which have contributed greatly to the construction of this spatial narrative.

Through specific interpretative lenses and through descriptive and interpretative cartography, this chapter will perform a rereading of its plan and unravel the processes through which the city was founded and how its first spaces have materialized, through an imbricated assemblage of projects, laws and constructions.

2.1. Antecedents

The foundation of Belo Horizonte as the new capital of Minas Gerais in 1897 can be seen as a reflection of important events happening in the second half of the nineteenth century in Brazil and also globally. At the national scale, it comes only a few years after the proclamation of the Brazilian Republic in 1889 and the abolition of slavery, the year before.

Having direct or indirect influences to the creation of the new city such events constitute undoubtedly the pinnacles of a period of wide politic, economic and social changes in Brazil. On a global scale, Belo Horizonte emerged a few decades after the Hausmannian Paris reforms, which changed the course of urbanism forever[2]. Two other inaugurated capitals, Washington D.C., one century before, and the Argentinian La Plata, preceding Belo Horizonte in only one decade, played a fundamental role in Belo Horizonte's history, to be further discussed.

Belo Horizonte's urban endeavour has been framed as an important part of the Brazilian republican project, underlined by the ideas of order and progress in its development. The city, not only through its project but also its construction, has been seen as the material representation of the State power, able to embed, in one gesture, the republican ideals of order and progress. (Le-Ven, 1977; Magalhães & Andrade, 1989; Paula & Montemór, n.d.). A lot of effort has been dedicated to contextualizing Belo Horizonte's foundation politically, while also associating its project with positivism and rationalism, and with Baroque urbanism (Aguiar, 2006; Faria, 1985; Gomes & Lima, 1999; Lemos, 1998; Magalhães & Andrade, 1989; Resende, 1974).

>
Image 14:
Timeline of events before and after the inauguration of the new capital.
Source: by author, 2019

>
Left:
Curral del Rey 1896.
Source: APCBH. Coleção José Goes

Centre:
Belo Horizonte 1900.
Source APCBH. Coleção José Goes

Right:
View of Avenida Afonso Pena between 1920-1930
Source: APM.

COLONY
<-1822

EMPIRE
1822-1889

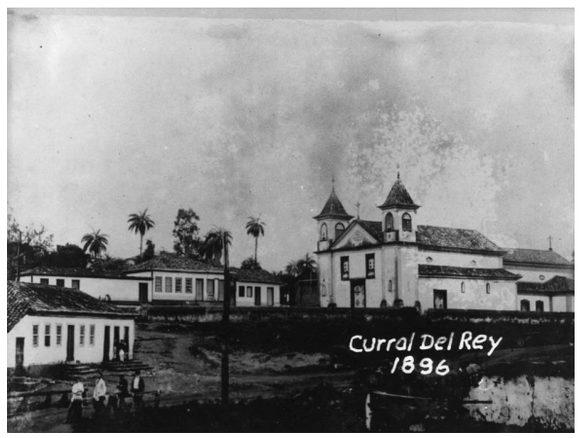
REPUBLIC
1889->

FAZENDA DO CERCADO 1701
INCONFIDENCIA MINEIRA 1789
INDEPENDENCE 1822
LEI DE TERRAS 1850
ABOLITION SLAVERY 1888
REPUBLIC 1889
CONSTITUIÇÃO MINEIRA 1891
SURVEYS LOCATIONS 1893
DECREE 680 COMISSÃO CONSTRUTORA DA NOVA CAPITAL 1894
1895
FOUNDATION OF THE CAPITAL 1897
DISSOLUTION CCNC 1898
1898-1899
CODE OF CONDUCT 1901
FIRST EVICTIONS 1902
1909
EMANCIPATION AGRICULTURAL COLONIES 1911-14
EVICTIONS 1917
WORKERS "VILLAS' LAW 1919

AGRICULTURE COLONIES
VILA OPERARIA

5km
1km
0

1km
5km







The aim of this chapter is not to reaffirm these images nor to oppose them, but to move beyond common senses and established approaches, precisely because of their power in overshadowing a whole set of possible dissonant narratives and alternative interpretations. One of these approaches can be characterized by the adoption of a north-south perspective, which focus is framing the relations between north and south, searching for models of inspirations and 'how we have learned from them'. It can be identified by the use of terms such as 'influence', "model', 'copy', 'importing' which should be here avoided. It is necessary to move beyond pointing to the 'export and import' of planning, by highlighting the local agency in the production of space (Nasr & Volait, 2003) identifying the arrangement of actors and decisions in the implementation of those ''imported" ideas.

Another tendency that this research intends to move away from is a stylistic approach that tries to insert Belo Horizonte in a specific urban model, most frequently the Baroque city. The latter comes naturally as a development from the first (and most of the times combined with it), as it looks for external urban paradigms which would, in theory, be translated to urban form in Belo Horizonte. Beatriz Magalhães and Rodrigo Andrade, in '*Belo Horizonte: um espaço para a República*', (1989) consider not only the project, but also the materialization of this city as a direct translation of positivism, while paradoxically combining Baroque and Plato's utopian urban conceptions. For them, the Baroque urban paradigm is present in Belo Horizonte mainly in the geometrical rationality of its streets, in the importance given to perspective and monumentality with focus on power representation and the sense of spatial infinitude given by the linearity of the avenues. Still according to the author, the typical centralization of power, common in Baroque urbanism, finds resonance in Belo Horizonte as the city's foundational core was holistically planned and built by the State throughout all the steps of its implementation ranging from the choice of its location, to its preparatory surveys, and the planning of its urban form and related power distribution, in addition to building houses for the state's administrative staff. The connection established by the authors with Plato is based on the interpretation that Belo Horizonte's plan is platonically utopian not only due to the centrality and hierarchy of power, but mostly for the self-enclosed shape given to its urban zone and the centripetal movement it suggests. To make such connections, examples such as Saint Petersburg, Versailles, Haussmannian Paris, Washington D.C. and La Plata appear recurrently, not only in Magalhães and Andrade's work, but in many other analyses before and after them[3].

The third tendency that I aim to critically access is the direct linkage

between political projects and the physical shaping of urban space, as if one is a mirrored materialization of the other. The historical importance of the momentum in which Belo Horizonte was conceived and constructed has influenced views about the city, considered as the pure materialization of political projects and the Republican dream, an urban artefact symbolizing progress and modernization. In the words of Magalhães and Andrade the new capital was: "(…) the materialization of the diagram of force relations of an inflection moment in Brazilian history – between one [form of] colonialism and the other, between slavery and capitalism, between the monarchy and the affirmation of the Republic"[4] (1989 p. 206). The political moment of Belo Horizonte's construction, the beginning of the Republic, is surely one of the most relevant contexts of its history, but it does not mean that the city must be considered as the Republic's wholesome reflection.

In *'New Towns: From Antiquity to the present'*, Ervin Y. Galantay (1977) explains the phenomenon of new towns through the hypothesis that new towns emerge in transition phases in the evolution of societies. To him, each "wave of new cities" (ibid, p. 17) represents an effort to develop a new structure which also corresponds to a new economic base. In Belo Horizonte, we have seen the combination of at least three motivations which Galantay raises as characteristic in the construction of new cities. Firstly, the new geopolitical conditions of Brazil and Minas Gerais (the Republic, the new constitution and by consequence the redistribution of powers) have led to the transfer of the state capital to a more central position in Minas Gerais' territory. Secondly, the new geopolitical moment was combined with a modernization politics, leading to the 'abandonment' (his term) of a capital (Ouro Preto) highly associated with tradition and the inertia of an *ancién regime*. The new capital acts therefore as a vehicle of the progressist politics, importing new techniques, new cultures and new social orders. Thirdly, the construction of Belo Horizonte might be considered also as an internal colonization project, in which the aim is to bring population and investments to other areas, as a development politic in states with strong regional unbalance, aiming to make better use of local resources (ibid, p. 37). More about each of these aspects will be discussed further in this chapter.

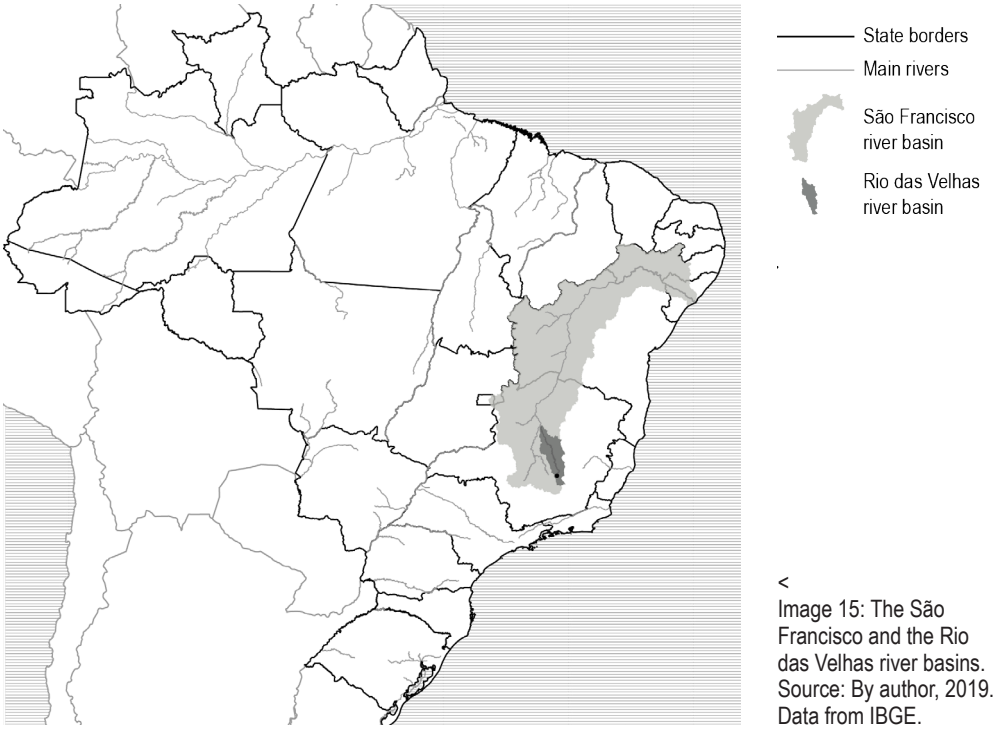
While acknowledging the exchange and appropriation of urban knowledge from northern references, the intrinsic Baroque character of its grid, diagonals and perspectives, and the fact that the city form can be, and perhaps always is, the materialization of politics and ideologies to a certain extent, this chapter aims to detach the history of Belo Horizonte

from specific referential models, also acknowledging that its project and materialization belongs to a broader spectrum of new cities world-wide. Instead of a direct transfer of models, there is, instead, a wide geographic and historical practice of planning new (geometrical) cities ever since at least the 8th century b.C., according to the accounts of Galantay[5] (ibid).

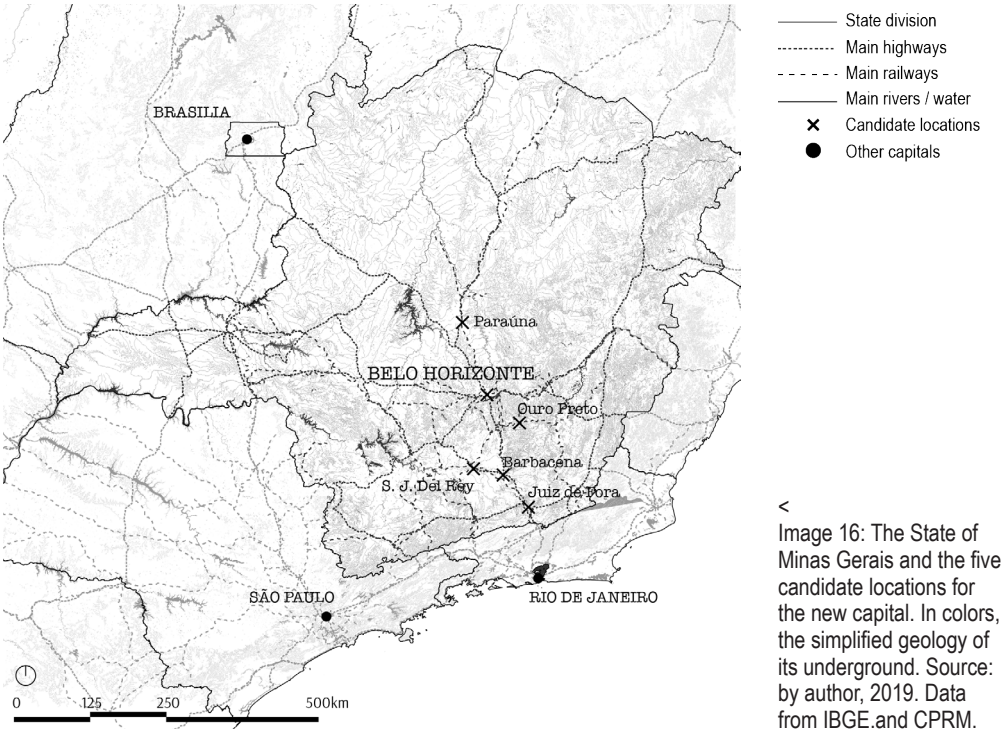
While recognizing such relations, this chapter proposes to move forward, by renewing the interpretative frame and by multiplying the sources of the city's spatial history. The expansion of the understandings about Belo Horizonte's origin and development require the widening of spatial and also time frames. It begins, for example, by the recognition that the project for Belo Horizonte does not emerge from scratch after the inauguration of the Republic, but is, in fact, a much longer project, with roots in colonial Brazil.

As described in chapter one, in Minas Gerais, the concentration of resources and the cyclic nature of the mining economy has been, not coincidentally, paired with momentums of political and social turmoil. A recurrent question appearing in such moments the one about the capital city. By the late 1780s, when the gold mining economy was rapidly declining, miners grew unhappy about Portugal's taxes policy and control. The separatist movement named *Inconfidência Mineira*[6], headed by Tiradentes,[7] included the plan to create a free Republic. According to the trial testimonies, the separatists' idea was to install a new Republican capital and to erect a University in Vila Rica, inspired of the one in Coimbra (Governo do Estado de Minas Gerais, 1976). While another major city in Minas Gerais, São João D'el Rey would be the new Republican capital, it was not clear, however, what were the group's plans for the existing Provincial capital, and whether Vila Rica would be replaced or not. Nevertheless, one of the main witnesses of the trial, Domingos de Abreu Vieira, claimed that Tiradentes himself had advised him not to make further investments in his houses as the capital was about to be transferred to São João D'el Rey better located and richer in provisions (ibid, 1976, p. 144). This declaration, despite being very personal and imprecise, shows intentions of withdrawing importance from Vila Rica in favour of another city in the same Province and most likely an attempt to re-distribute power and wealth in what was then the Province of Minas Gerais[8].

According to the journalist and historian Joaquim Nabuco Linhares (1905), the movement was so violently reprehended that the question of a new capital city would become an open wound, and a topic left untouched for decades. After Brazilian independence was proclaimed in 1822, the issue remained initially in the background once the establishment of the



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Image 15: The São Francisco and the Rio das Velhas river basins. Source: By author, 2019. Data from IBGE.



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Image 16: The State of Minas Gerais and the five candidate locations for the new capital. In colors, the simplified geology of its underground. Source: by author, 2019. Data from IBGE.and CPRM.

Imperial government required some time for reshuffling powers and re-organising the political and economic scene. Linhares' historical survey revealed that in 1833, 1843 and 1850 the topic appeared punctually in discourses held at the Provincial Congress, without moving forward. In 1867, as Brazil starts to announce its shift towards modernisation and progress, the topic re-emerged in Minas Gerais' Provincial Congress as a serious project presented by the congressman - and priest - Mr Paraízo. For him, the question of a new State capital was rather urgent, seen the backwardness of the Province's infrastructure and the neglect of its vast and fertile northern territories (ibid). Mr Paraízo proposed the capital city's transfer to a location on the margins of the Rio das Velhas as an urgent salvation measure, betting on the future navigation of this river. This move would, according to him, bring richness to the Province, allowing for better communication across the North-South and East-West axes of Minas Gerais' vast and diverse territory. Ouro Preto, the capital of the time, was, in his opinion, decadent and located in a place which only consumed without producing (ibid., p. 26). The project of number 15 was approved by his fellow congressmen but never sanctioned by the Province President. (ibid) One probable reason was the precarious financial condition as a consequence of the wars with Paraguay and Uruguay. The matter remained silenced for two more decades.

After the establishment of the Federative Republic of Brazil (1889), the new National Constitution of 1891 transferred political and economic autonomy to the provinces, now transformed in federated States. According to the National Constitution[9] each State would be responsible for its taxes and expenses, would own all mines and lands within their territory, and was under the obligation of establishing their State Constitution within two years. Following this decision, the formulation of Minas Gerais' Constitution was intensively discussed at the *Assembléias Constituintes*[10] between 1890 and 1891. In the same way that the National Constitution had anticipatively announced a new capital for the country[11,] Article 117 of Minas Gerais' constitutional project foresaw the transfer of the capital of Minas Gerais to a location yet to be chosen in the Rio das Velhas valley. The Rio das Velhas is a river which springs in Ouro Preto and runs for 800km in the centre of Minas Gerais. It is an affluent of the Rio São Francisco, one of the largest rivers in Brazil[12]. Belo Horizonte is inside its river hydrographic basin, its centre distancing only 10 kilometres from the river (See Image 15).

The formulation of Article 117 was possible thanks to the Federal Decree n. 7, launched five days after the Republic's establishment. Its second

article gave special competence to State governors until the elaboration of the definitive constitution of the United States of Brazil (as the republic was called initially). One of these competencies was to: "§1st Establish the civil, judicial and ecclesiastic division of the respective State and order the change of capital to the place which is more convenient"[13]. (Brasil, 1889) The Federal law and the Minas Gerais' constitutional project formed jointly the perfect occasion for resuming the old project of transferring the capital, since the legislation of two governmental levels now foresaw it. Having failed many times, the strength of the State Constitution would make it more than a desire, but a constitutional definition.

In the analysis of the urban historian and planner Michel Le-Ven (1977), the moment was auspicious for such an audacious endeavour since the new governmental system allowed States to run their own finances and resources both above and below ground. In his view, political decentralisation helped empower hegemonic oligarchic groups, who pushed in favour of a new capital city.

After the Republic's establishment, the ambition to reawaken the project for a new capital permeated all spheres and was discussed not only in the Congress but also at the press and on the streets. The topic caused considerable controversy amongst politicians and residents alike. This happened all around Minas Gerais, and especially in Ouro Preto. In general, there were three sides to this discussion (Resende, 1974). First, those who favoured the shift, and saw the construction of a capital as a necessary step for State progress since the previous capital's location was thought to hinder industrial expansion. Ouro Preto's inhabitants were located at the other end of the spectrum: they saw the project as an unnecessary investment that would lead to State bankruptcy and the unavoidable demise of Ouro Preto and its inhabitants. Interestingly, the examples of other planned capitals which have been considered as roles models for Belo Horizonte's development by mainstream historiography, are mentioned several times in the debates. Washington D.C. and especially La Plata were examples not to be followed, seen the vast amounts of resources spent. In the opinion of congressman Mr C. Senna, who opposed the change, it was essential to take advantage of the Argentinian experience. La Plata, the model city, with exemplary buildings, was almost uninhabited, despite the expectancy of a great exodus of the Argentinian elite. Still, according to Senna, the magnificent palaces were sided with the most deplorable financial situation. His prognostics for Minas Gerais' new capital were the same, given its financial conditions. (O Estado de Minas Geraes: Orgão Official, 1891a). A third group considered the new capital a certainty but

raised questions about its future location. According to some congressmen (ibid), other regions in the State also deserved consideration if the government wanted to find the most appropriate location.

Before the question became a topic for discussion in Congress, when the excitement about the shifting the Capital was reawakened, the Governor had already hired a commission to survey a number of sites along the Rio das Velhas: Lagoa Santa, Quinta do Sumidouro, Fazenda do Jaraguara, Barra do Jequitibá, Sete Lagoas, Fazenda do Campo Alegre, Matozinhos e Bello Horisonte[14] (Linhares, 1905, p. 55). In October 1890, the report produced by this commission and signed by the engineer Herculano Penna pointed to the village of Bello Horisonte[15] as a favourable location. This report circulated in the hands of congressmen and the newspapers and was often mentioned in the debates at the *Assembléias Constituintes*. (O Jornal de Minas, 1891). The rumour that this village would be the location for the new capital spread rapidly thereafter after notes were published in Ouro Preto's local newspaper, the Jornal de Minas. This paper was only in circulation between 1890 and 1891, publishing rather impartial articles covering the topic of the new capital almost daily. The editors did not hide their opposition to the project: their harsh criticism included a mocking attitude towards the village of Bello Horisonte and its dwellers, who were known for suffering from goitre, probably due to the lack of iodine. The aim was to question the adequacy of the capital's location as it lacked one of the most valued assets of its time, hygiene[16].

Interestingly, such location had changed the name from Curral d'el Rey to Bello Horisonte in February 1890. According to previously mentioned Joaquim Linhares, the change was a strategic move of the villagers influenced by the rumours of the capital's transfer to a nearby location The new name corresponded better to a Republican reality in contrast to the former since *Curral* refers to cattle breeding and *Rey* refers to the monarchy, a past to be forgotten (Linhares, 1905).

Another stratagem used by the group opposing the shift was the spreading of stories about land speculation on the site expected to host the new capital. Several articles published in the Jornal de Minas (1890-1891) suggested that an unnamed 'syndicate' was making large profits with the project and was already buying properties in Bello Horisonte. Similarly, Padre Paraízo, who proposed the Capital transference back in 1867, was accused of having personal interests behind the project. The rumours and the following mistrust meant the death of his political career (Linhares, 1905).

In fact, until mid-1891 the project of the capital's transfer had not yet been thoroughly discussed in Congress. The speculations on its future location were not, however, totally ungrounded. In March 1891, the then President of the State Dr Augusto de Lima drafted a decree transferring the capital Bello Horisonte, which was never officially published. On 7th April, he delivered a message to the *Congresso Constituinte*[17], emphasising the urgent need for changing the capital's location and appointing Bello Horisonte as the most suited location. On the 24th of the same month, the congressman Dr Augusto Clementino presented a project proposal for moving the capital to a central point in the Rio das Velhas Valley, which was not more than a re-evocation of the project proposed by Mr Paraízo in 1867 before. The proposal stated:

> *"The capital is changed to a central point in the valley of Rio das Velhas, which is suitable for the edification of a great city with the indispensable conditions of hygiene.*
>
> *§1st - This shift will be achieved within four years, etc.*[18] *"* (n.d. apud Linhares, 1905, p. 60)

Three critical features that the new capital city was expected to have can be derived from this proposition. Firstly, centrality was an important issue. Secondly, it was expected to become a great city. Thirdly, hygiene was a primordial question. These aspects are the mirror image of the characteristics Ouro Preto did not have because it was isolated, topographically constrained and unhygienic.

Clementino's proposal was added to the Constitutional project under Art. 117, although divided into two parts: one declaring the capital's transfer and the other, much more controversial, designating the sites to be studied for its location.

On the 11th session of the Constituent Assembly, held on May 11th 1891, several requirements and amendments were presented in Congress asking for the consideration of other regions as well[19]. The number of regions and valleys suggested were so many that the future requests started to sound more like a provocation by those opposing the project than actual proposals. In the opinion of Mr. A. Clementino, an engaged supporter of the shift (according to Linhares, 1905)

> *"if the Congress will have to order the study of all the valleys of Minas Gerais state, the valleys of Rio das Velhas, Paracatú, S. Francisco, Jequitinhonha, at last, all the territory of the State, measuring around 20 thousand square leagues, a territory much*

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Image 17: Studies of Vázea do Marçal, close to São João Del Rey, by the Study Commission for choosing the location of the new capital.

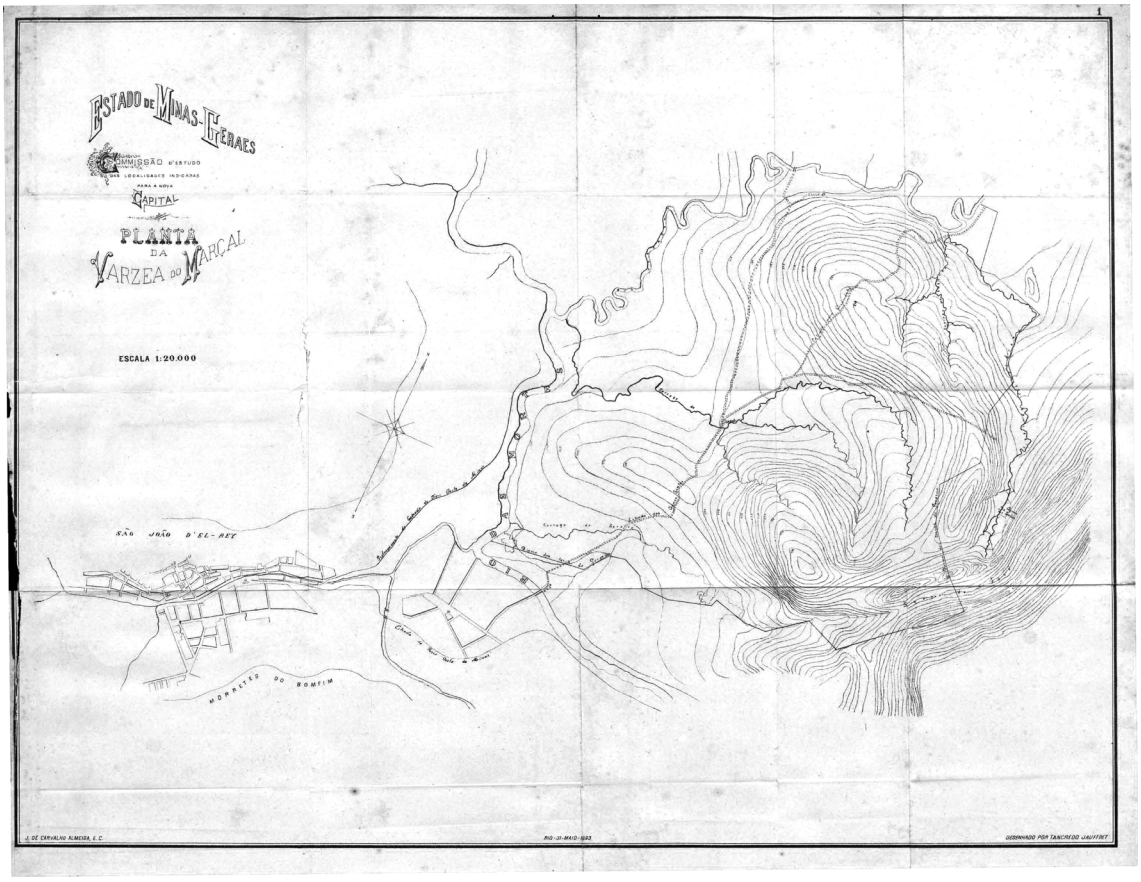
Estado de Minas Gerais. Comissão d'Estudos das Localidades Indicadas para a Nova Capital. Várzea do Marçal.

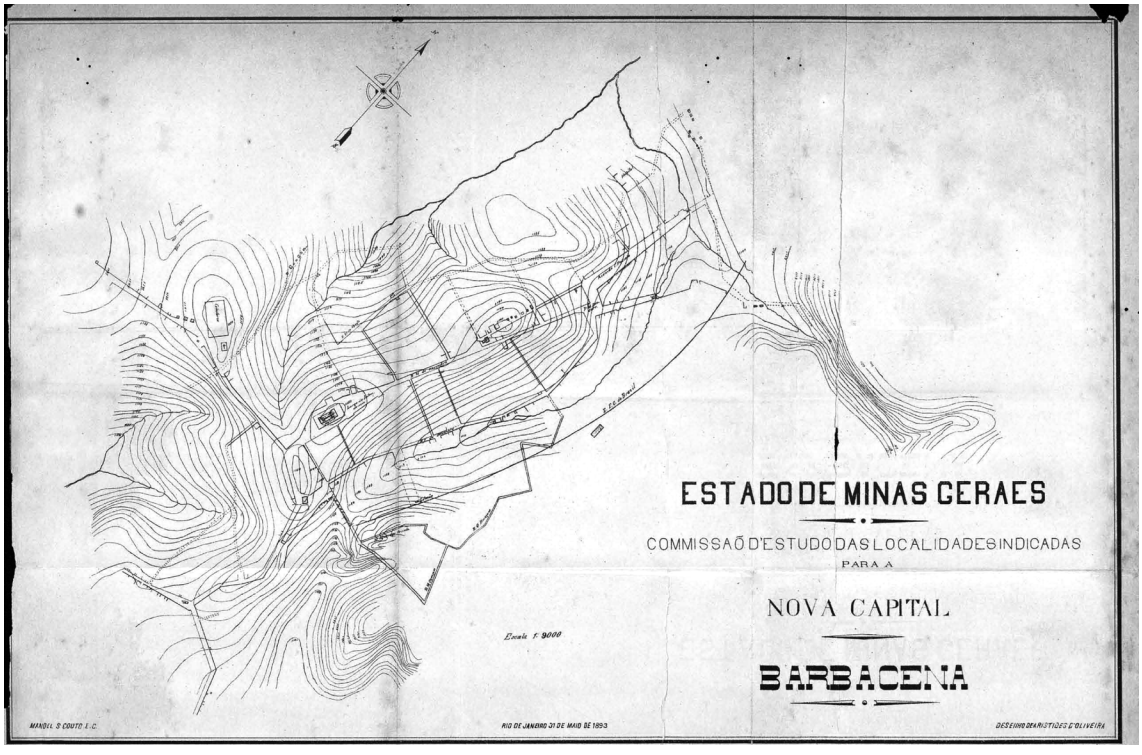
Source: Capital, 1893

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Image 18: Studies of Barbacena by the Study Commission for choosing the location of the new capital.

Estado de Minas Gerais. Comissão d'Estudos das Localidades Indicadas para a Nova Capital. Barbacena

Source: Capital, 1893


ESTADO DE MINAS-GERAES
COMMISSÃO D'ESTUDO
DAS LOCALIDADES INDICADAS
PARA A NOVA
CAPITAL
PLANTA
DA
VARZEA DO MARÇAL
ESCALA 1:20.000
S. JOÃO D'EL-REI
MORRETES DO BOMFIM
J. DE CARVALHO ALMEIDA, E. C.
RIO-31-MAIO-1893
DESENHADO POR TANCREDO JAUFFRET


ESTADO DE MINAS GERAES
COMMISSÃO D'ESTUDO DAS LOCALIDADES INDICADAS
PARA A
NOVA CAPITAL
BARBACENA
Escala 1: 9000
MANOEL S. COUTO E. C.
RIO DE JANEIRO 31 DE MAIO DE 1893
DESENHO DE AUGUSTO DE OLIVEIRA

> *larger than the entire France, it is perfectly demonstrated that the deadline of 45 days for all the studies, as my colleagues desire, is minimum, is even ridiculous"*[20] (O Estado de Minas Geraes: Orgão Official, 1891b).

Adding many sites for consideration was justified as a more democratic process, but it was also viewed as a boycott strategy[21] , since the time for performing the surveys was also limited by law. At the same session. Mr C. Prates explains that the valley of Rio das Velhas was indicated because of its importance as a commercial hub, being connected to the main railway artery of the country and also navigable (ibid). Later in the same session, Mr Costa Senna questioned if the topic should even be included in the Constitution since it was not a constitutional matter, which usually involved the organisation of the government, but a matter of concern for the executive power. (ibid)

Amongst politicians at the time, the construction of a new capital was seen as a necessary step for the progress and development of Minas Gerais. This idea was explicitly defended in many of the congressmen discourses at the Assembleias Constituintes. For example, Mr Aristides Caldeira's discourse, pronounced on May 4th 1891 in the Congress, defends the shift of the capital based on considerations of several orders: economic, commercial, industrial and agricultural, besides hygienic. For him, the topography, soil conditions and location of Ouro Preto were severe impediments for the capital progress and hence the State's. Not finding possibilities for investments locally, *mineiros*' capital fled to other State capitals such as Rio de Janeiro and São Paulo. Despite the central location of Ouro Preto within the geography of Minas Gerais, the former capital could not effectively perform like a commercial and industrial centrality because of the difficult access to its narrow valley.

After lengthy discussions, the project for the new capital was finally approved, but reaching an agreement about its location in such a short time was an unmanageable task. The constitutional text, launched in June 1891, included the Article 13 of the transitory dispositions – an almost identical copy of Article 117 of the constitutional project - determining the capital's realisation without designating a location. In October of the same year, the article becomes the Law nº 1 Additional to the Constitution. In 1892, the new president of the State Afonso Penna created a special commission to survey and thereafter choose a location, entitled *Comissão D'Estudos das Localidades Indicadas para a Nova Capital* (Study Commission of the localities appointed for the new Capital. For brevity, will be here called by 'Study Commission'). The five candidate locations agreed at the Congress

were: Bello Horisonte, Várzea do Marçal, Barbacena, Juiz de Fora and Paraúna.

In the first pages of this Commission's report its appointed chief engineer Aarão Reis affirms his impartiality and therefore neutral scientific position concerning the choice of the location for the Capital (Capital, 1893). As he was not from Minas Gerais and therefore was thought not to carry any direct or indirect interest, he was in a condition of "perfect exemption from animosity or spirit, without previous predilections or, even now (after the studies), without acquired passions"[22] (ibid, p. 11). He directs the final decision to the Congress, wishing for the future confirmation of this choice, in his words "based on the positive data gathered by my colleagues, who are equally found in identical conditions, seen how I cautiously avoided to resort on the collaboration of *mineiro* professionals [from Minas]"[23] (ibid). In his discourse the belief in the positivity, neutrality and therefore superiority of science is evident, while he regrets that his scientific results will probably not overrule the political sphere. In this sense, he adds at the end of his introductory letter:

> *"In these conditions, I judge myself in the right to use complete candour, without the concern that certain truths might unsettle, anyhow, those who, letting themselves be dominated by a misunderstood provinciality of spirit, will not put the most well-grounded predilections and the most legitimate local interests before the highest conveniences of the state"* (Capital, 1893, p. 11).[24]

As Aarão Reis feared most, despite the numerous scientific arguments presented in the technical report - pointing Várzea do Marçal as the best option - the final decision was political, voted in the Congress in December 1893. The choice then returns to Bello Horisonte, close to Rio das Velhas valley, as had already been suggested by Mr Paraizo back in 1867, returning to the constitutional project in 1890 and also the choice made by the report of Herculano Penna. Várzea do Marçal won in the first two sessions, but the Arraial de Bello Horisonte[25] won in the third and decisive round of congressional votes. It was a farming settlement inside the borders of the municipality of Sabará which had been another important gold mining colonial town. Although only 10 kilometres apart – in a straight line -, it took two days of travel by mules from Sabará to the Arraial de Bello Horisonte at this time.

On 17th December 1893, a few days after the Congress' voting, Law n.3 Additional to the Constitution was launched designating Bello Horisonte

as the place to build the new capital within the frame of four years.[26]

In the analysis of Maria Efigência Lage Resende (1974) and Michel Le Ven (1977), the dispute around the capital's location was, in fact, a political one between several dominant groups in Minas Gerais. With the rise in coffee prices, the financial success of agro-exporter groups from the South and Mata regions could be translated into political power if the capital would be transferred to Várzea do Marçal. A third option, the Vale do Rio Doce was intensively defended by the groups of the North, headed by the then-senator Afonso Pena. For them, the region had great potential to be easily connected by rail and water transport to the coastal State of Espírito Santo, facilitating exportation and therefore bringing development to a region going through financial difficulties. For Le Ven, Bello Horisonte was the outcome of a compromise found by various groups who shared an opposition to the decadent, but still powerful, mining groups of Ouro Preto.

As seen from the sources mentioned, the choice for Bello Horisonte was not a purely technical one, as the results of the engineers' reports have indicated, nor a totally political one as the above authors have concluded. The fact that technical reports were commissioned and produced for choosing the site for the future capital presents strong evidence of the positivist-oriented reasoning which heavily relied on precise measurements and calculations[27]. This inclination is confirmed by some of the congressmen's discourses, defending this location, or others, basing on technical arguments, such as accessibility through railway or water, proximity, hygiene, topography, etc. On the other hand, Bello Horisonte keeps appearing as the main choice in several proposals over time, also always supported by technical reasoning. It was the choice of Mr Paraízo in 1867 and of the State president Augusto de Lima in 1891, even before the Study Commission was established. Although both political and technical reasoning seemed to converge towards Bello Horisonte, the location has been criticised by some of its historiographers for presenting a difficult topography for the construction of a city[28]. However, as it was pointed out in one of the heated discussions about the capital's future location, it would be difficult to find a single flat place in the whole state of Minas Gerais, given its geological reality[29]. We can see therefore that as much as the technical reports and the political discourses supporting them have tried to justify the new capital's location through scientific reasoning, underlined by the positive ideals of progress and development surrounding the city's construction, the reality of the social alignments is much more complex than that.

The expansion of the time frame of the history of Belo Horizonte's plan

and the multiplication of sources – which included the examination of the debates concerning the capital's change of location – allowed understanding the project of a new city as a combination of a political project with an engineering one. It is the result therefore of a rhizome of economic and socio-political arrangements which converged to the creation of a new capital. Having understood better the motivations underlying the construction of Belo Horizonte, the following sections will examine its process of construction through the interpretative lenses developed in the first chapter.

2.2. Embedding in nature, rationalising landscape

The Rio das Velhas valley occupies a central position in the State of Minas Gerais, being the main tributary the Rio São Francisco, the state longest and largest river (Image 15). Having its headwaters in Ouro Preto, the valley's occupation dates from the 18th Century, when the gold exploration in Minas Gerais began. Due to the difficulty imposed to traveling by the region's undulated terrain, its waters were for a long time an essential means of transportation between colonial mining locations, such as Ouro Preto and Sabará[30]. For the same reason, its valley was used to install the railway after 1890, connecting the region to the Estrada de Ferro do Brasil, the country's main railway. Its central position and navigability were therefore strong assets for choosing Bello Horizonte as the location for the new capital, occupying a central position in its hydrologic basin.

In the past, the landscape and natural resources found in Ouro Preto, with valleys and rivers rich in gold, were the sole reason for its existence and the basis of Minas Gerais' prosperity. However, one century later, the same landscape was no longer appropriate in this new moment in which industrialisation and communication were a must. Moreover, the gold of Ouro Preto had been extinguished for more than one century, which explains its economic and political decline (Paula, 2000). As its surrounding landscape was not appropriate for agriculture nor industry, the city was solely the State's administrative centre, and not a strong economic centrality. Despite the undulated topography of Belo Horizonte, it was considered to be much more tamable than the one of the former capital. Moreover, its location, close to the Rio das Velhas' valley, promised an easier connection with the railway network. In the new location, the landscape could offer a supporting surface, to be manipulated according to the demands and expectations of the new era.

Founding a new settlement in this moment presented the perfect opportunity for experimenting and demonstrating the power of engineering technology for the taming of the landscape. A usual first step in the process of transforming nature into city, hills into geometric streets, is dissecting the landscape through the lenses and methods of modern science. In this process, landscape with its diverse uses and meanings gets translated into measurements such as the volume of wood for construction and the quality of water, including sensorial measures such as taste and odour[31]. To fit its utilitarian purpose, the State's view over landscape becomes abstract and partial at the same time that it can be very elaborated. (Scott, 1998)

The Study Commission in charge of carefully examining and comparing the five candidate locations was composed by a group of engineers and one hygienist doctor and captioned by Aarão Reis, an engineer graduated at the Escola Politécnica do Rio de Janeiro, a school by then highly associated with positivist ideals, who was a known follower of Saint-Simon and Auguste Compte (Lins, 1967). The surveys performed by this group have revealed thus the influence of the scientific reading of the landscape, a recurrent idea in France and Europe at the time (Salgueiro, 2001). Following such principles, the Study Commission performed a detailed analysis of the landscape found in each location, which included the examination of topography, soil, availability of water, settlements, agricultural resources and the availability of construction materials such as wood and stones (Capital, 1893). Since each of the chosen sites was an existing village, settlement or its surroundings, the landscapes found were no longer a wild nature, but an already partially tamed one. The studies included also the examination of climate, salubrity, sewage systems and the general health of its inhabitants. In this view, landscape assets are evaluated according to the amount of investments required to transform nature into resources for human use, for example, how costly would be the catchment of water and the installation of sewage networks. The economic and the political scene of each location were also evaluated since it was expected for the new capital to be the intellectual, economic and political center of the state.

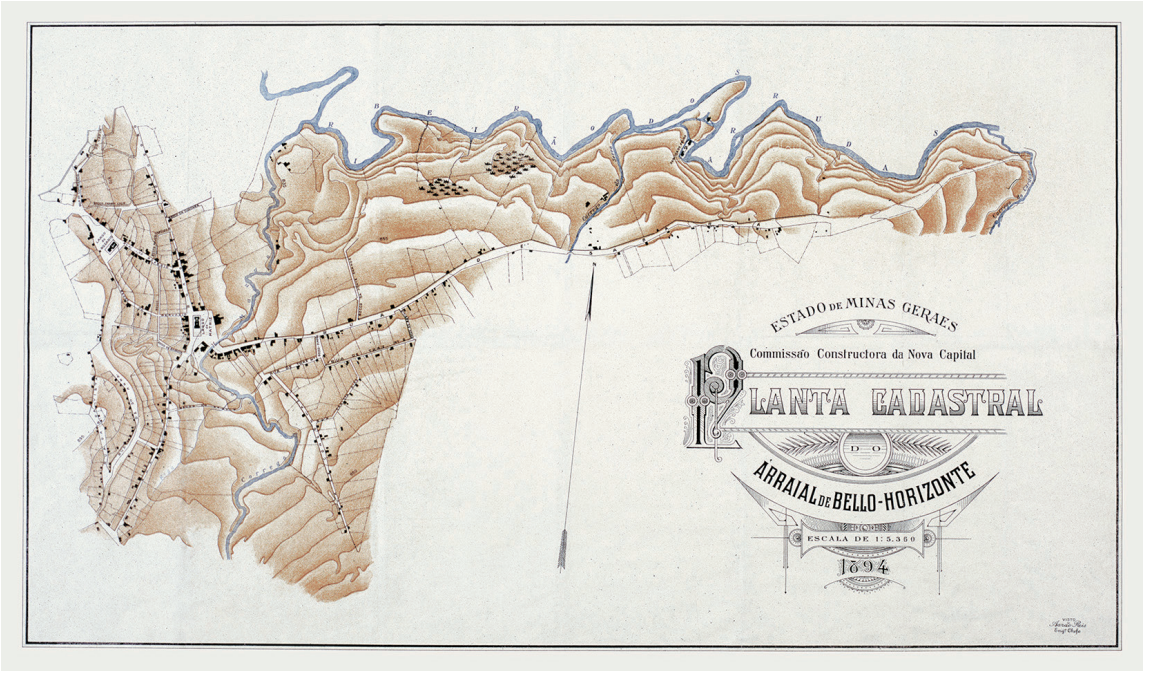
In the report's conclusions, both Bello Horisonte and Várzea do Marçal were presented positively because of good topographical conditions, available water supply, the feasibility of sewage installation and suitable conditions for the edification of buildings and construction in general (ibid). In Aarão Reis' opinion, railway access and better location assets made Várzea do Marçal the most favourable location (ibid). Although not geographically central, this village lied close to São João D'El Rey, a political and economic centrality in Minas Gerais. However, the name

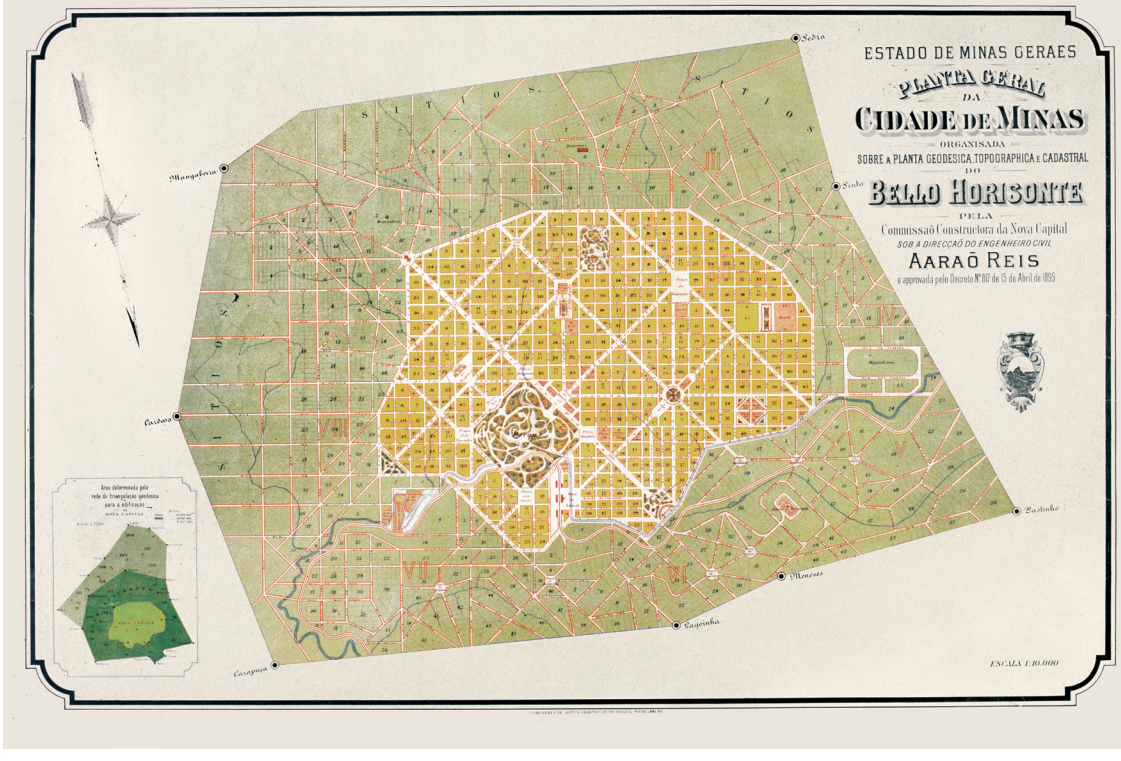
> Image 19: Geodesic, Topographic and Cadastral plan of the studied zone. Scale 1:10.000. Comissão Constructora da Nova Capital. March 1895. 1st Engineer Hermilio Alves.

Planta Geodésica, Topographica e Cadastral da Zona estudada. Escala 1:10.000. Comissão Constructora da Nova Capita. *Março de 1895. 1º Engenheiro Hermilio Alves.*

Source: APM


ESTADO DE MINAS GERAES
COMMISSÃO CONSTRUCTORA
DA
NOVA CAPITAL
BELLO HORIZONTE
PLANTA
GEODESICA, TOPOGRAPHICA E CADASTRAL
DA
zona estudada
Escala 1:100.000 Metros
AARÃO REIS
XXVII
XXV
XXIV
XXIII
XXVI
XXII
XVI
VI
XV
XIV
XXI
XVII
XVIII
XX
III
XII
VII
XIX
I
IV
XI
II
VIII
X
IX


ESTADO DE MINAS GERAES
Commissão Constructora da Nova Capital
PLANTA CADASTRAL
DO
ARRAIAL DE BELLO-HORIZONTE
ESCALA DE 1:5.360
1894


ESTADO DE MINAS GERAES
PLANTA GERAL
DA
CIDADE DE MINAS
ORGANISADA
SOBRE A PLANTA GEODESICA TOPOGRAPHICA E CADASTRAL
DO
BELLO HORIZONTE
PELA
Commissão Constructora da Nova Capital
SOB A DIRECÇÃO DO ENGENHEIRO CIVIL
AARÃO REIS
e approvada pelo Decreto Nº 817 de 15 de Abril de 1895
Pedra
Mangabeira
Lagoinha
Barreiro
Cercadinho
Menezes
Carapina
ESCALA 1:10.000

várzea, which stands for 'floodplain' in Portuguese, already made obvious the highly floodable conditions of the site, placed at the right margin of Rio das Mortes in the confluence with two other tributaries. In an interview, Belo Horizonte's eldest urbanist still alive, Radamés Teixeira, commented that "if it were for Aarão Reis [decision], we would all have our knees covered by water right now".[32]

After the choice of location had been made, a newly appointed commission, *Comissão Constructora da Nova Capital* (Construction Commission for the New Capital, CCNC), also headed by Aarão Reis, was established to perform complementary studies, besides building the new capital. As the constitutional law only gave four years for its inauguration, works had to be performed simultaneously along three fronts: mapping the territory; expropriating and re-organising land, farms and urban properties and, finally, drawing out the capital's development plan. During the two years that separated the decree and the launch of its final plan (1893-1895), mappings were executed registering the local topography, water courses, streets, landmarks and properties. The result was an extensive cartographical collection presented at several scales. They are today the only memories of the site before the new city, as the entire Arraial was demolished, its rivers were canalised and later hidden, its topography manipulated and its trees uprooted. As James Scott has observed, cadastre maps act as to add documentary intelligence to the state power and thus provide the basis for its synoptic view of the landscape and a supra-local market in land (Scott, 1998, p. 39). Designed to make the local situation legible for outsiders – engineers and newcomers -, in Belo Horizonte the cadastral maps served first to acknowledge the setting within which the new city structure would inscribe itself, albeit by transforming it profoundly, and later to transform land in real estate asset controlled by the State itself.

The CCNC was established in March 1894, the same year of the publication of the village's detailed cadastre map[33]. (Image 20). In March 1895, the cadastral map of the entire area designated for the future capital, named *Planta Geodésica, Topographica e Cadastral da Zona Estudada* (Image 19), was published almost simultaneously to the plan for the new city. Besides a detailed account of topography, rivers, property divisions, roads, buildings and landmarks in the scale of 1:10.000m, the plan also presented a sketch of the future Avenida 17 de Dezembro, today Avenida do Contorno, which separated urban and suburban zones in Reis' plan (see further).

The speed of these works suggests that survey and plan were elaborated simultaneously, both under the leadership of Aarão Reis (see Gomes, 2010). The extensive cartographic and survey work performed by the Study

<

Image 20:
Planta Cadastral do Arraial de Bello Horisonte. Escala de 1:5.360.1894

Cadastre Plan, Arraial de Bello Horizonte. Scale of 1:5.360.1894 source:APM

<

Image 21:
Planta Geral da Cidade De Minas organizada sobre a planta geodésica, topographica e cadastral de Belo Horisonte pela Comissão Constructora da Nova Capital sob a direcção do Engenheiro Aarão Reis e aprovada pelo Decreto nº 817 de 15 de Abril de 1895. Escala 1:10.000

General plan of the Cidade de Minas organized over the geodesic and cadastral plan of Belo Horizonte by the Construction Comission of the New Capital under the direction of the engineer Aarão Reis and approvedl by the decree 817 of 15th April 1895. Scale of 1:10.000

Source: APM

7,5 km

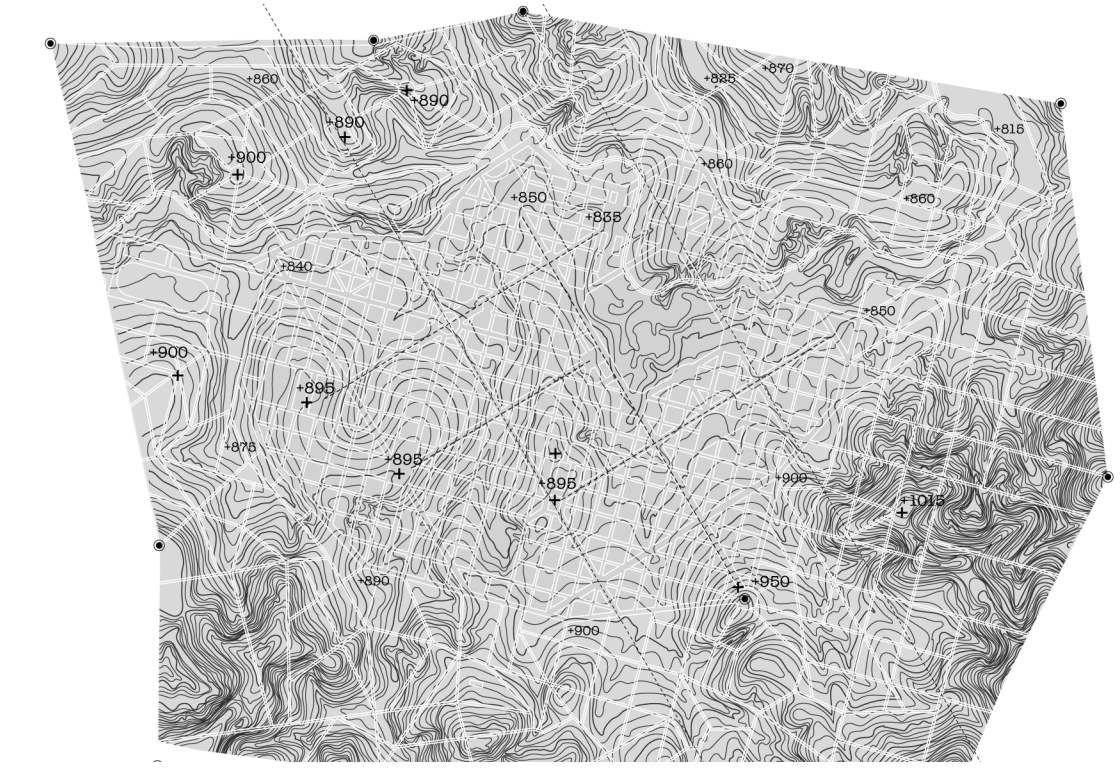
5 km



Main diagonals
Railway
Arrudas River
Reserved areas

1. Cathedral
2. Governor's Palace
3. Telegraph
4. Congress
5. Justice Palace
6. Theatre
7. Church
8. Municipality
9. Barracks
10. Hospital
11. Market

5 km



1:50.000

Commission and subsequently by the CCNC, have shown a meticulous and precise knowledge of the site. This indicates that the dominance of a rigid grid over topography, leading to the inauguration of impressive topographical manipulation practices, was a deliberate choice rather than the outcome of a careless plan[34].

2.2.1. Topography

While the contrast between the undulated topography and the applied orthogonal grid cannot be ignored, a closer look at both the plan proposed by Aarão Reis in 1895 (Image 21) and its implementation will allow further interpretations which go beyond the simplistic 'transfer of models' hypothesis. Considering also the speed in which the plan was elaborated (1893-1895), all this has fostered the impressions that Aarão Reis' plan could only be a "copy/paste" from somewhere else, drawn abstractedly and later stamped on Belo Horizonte's site. While further discussions on the question of the transfer of models will be exposed later in this chapter, this idea deserves to be here contrasted with another interpretation on Belo Horizonte's plan and construction which puts its implied landscape transformation in the foreground.

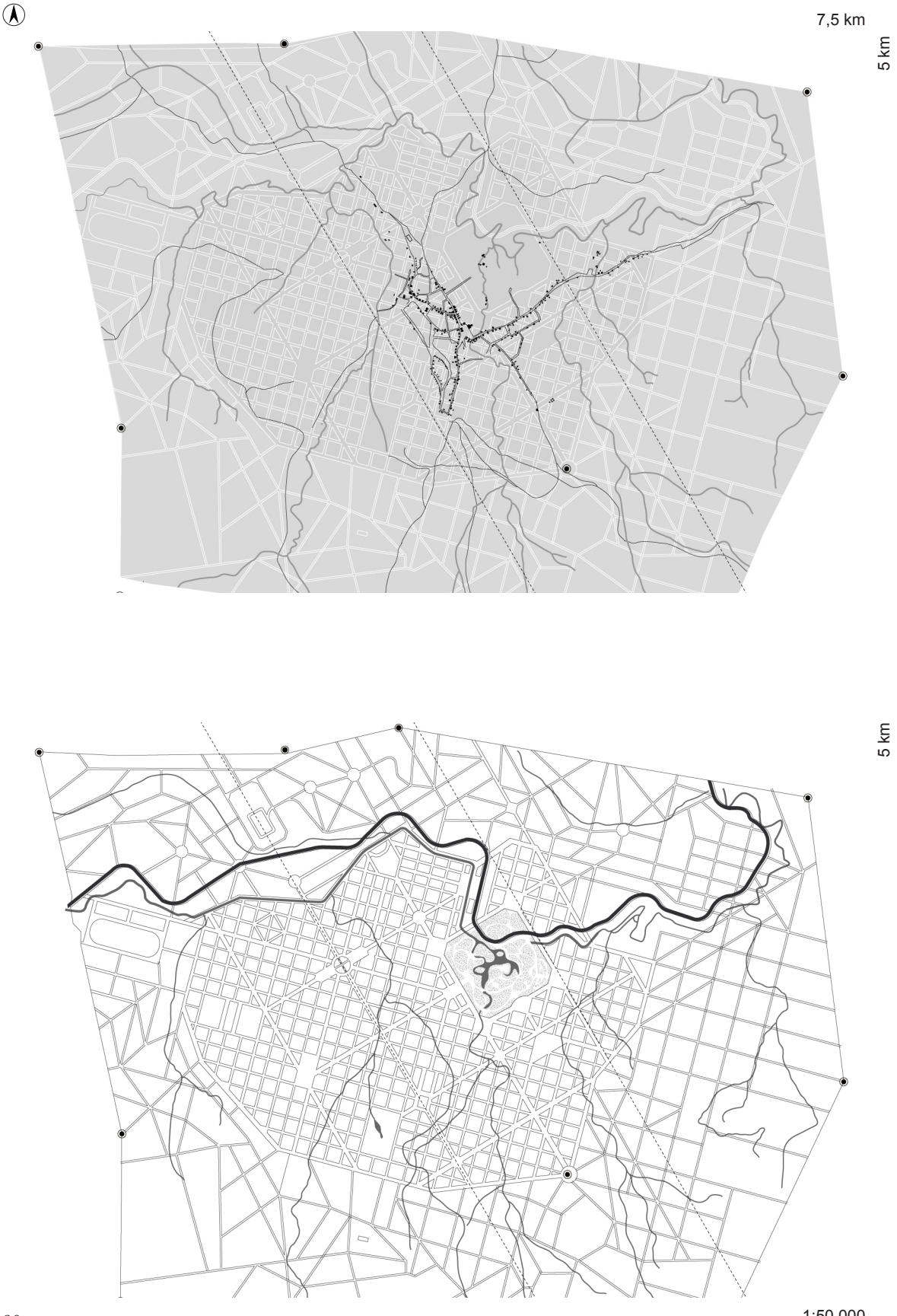
< Image 22: Retracing of the 1895 Plan highlighting the diagonals and plots reserved for public buildings. Source: By author. Data from historical maps available at APM and APCBH: *'Planta Geral da Cidade de Minas, 1895'.*

The analysis of Reis' plan in relation to the site's condition has shown how the proposal positions specific programs according to a topographic strategy, organised according to height and not in relation to the grid (see further). As topography was absent in the 1895 plan for the city, its most well-known representation, such relations can only be perceived by ground experience or further mapping exercises, which were extensively done in this research (See Images 23, 28 and 30).

The first and most obvious example, already noticed by Lemos (1998) was the positioning of the Governor's palace, the Palácio Presidencial, at the top of one of the small hills inside the urban zone facing the shorter edge of the Praça da Liberdade. In this position, all the paths leading to the palace and its large square are forced to climb the hill. Likewise, other public functions were placed on other elevated areas: the Praça da Federação with the barracks (today Praça da Assembleia) and the hospital (today the army barracks). In Correa's interpretation "Reis cleverly capitalised on the topographic discrepancy of the terrain in order to create a clear compositional axis and an impressed forced perspective" (Correa, 2016, p. 21), an intention most visible at the Avenida Afonso Pena, the plan's main avenue.

< Image 23: Site's water bodies and topography and relation with proposed diagonals. Source: By author. Data from historical maps available at APM and APCBH: '*Planta Geodésica, Topographica e Cadastral da Zona estudada, 1895"*

The main avenue of the urban zone, named Avenida Afonso Pena, (Image



1:50.000

22) connects the highest point of the site (+950) to the lowest (+850), cutting the plan in the Northwest-Southeast direction. At its Southern and highest end, a Cathedral was designed to occupy a viewpoint known as Cruzeiro in reference to a cross that once stood there, hovering on top of the former village. In uncountable Brazilian cities, Cruzeiros are placed on the nearest and tallest hilltop, serving as a reference landmark not only for residents but also for travelers. As the Cathedral was never built, the monumentality offered by the avenue is not directed to architecture but to the panorama offered by the Serra do Curral, the red-coloured and iron rich mountain ridge which encloses Belo Horizonte from the South. (Images 32 and 36)

<
Image 24:
Retracing of the 1893 Cadastre map of the Arraial de Bello Horisonte.
Source: By author, 2019. Data from historical maps available at APM and APCBH: '*Planta Cadastral do Arraial de Bello Horisonte, 1894'*

While the choice for the urban grid is understandable despite its contrast with the undulated landscape – a decision to be further discussed in the next section – the reasons for the shape of Avenida 17 de Dezembro[35], circumscribing the gridded Urban Zone, are unknown. Nowhere in the researched bibliography has Aarão Reis explained which logics guided such an irregular shape. Since the plan was designed for 200.000 inhabitants (Comissão Constructora da Nova Capital, 1895), one hypothesis that can here be formulated is that the number of blocks inserted within the perimetral avenue followed these calculations. The sum of blocks and plots inside this avenue would determine therefore the size and shape of the planned area. If so, why not proposing a pure geometric shape, like the one in La Plata, which would make the blocks even more isometric? By contrasting topography with the grid, one can find other possible reasons for the shape and geographical insertion of the gridded part of Belo Horizonte's plan (See Images 22 and 23). The Urban Zone touches the Arrudas Valley, with its northern border coinciding with the river at many points. While the gridded area embraces some small hills, it also avoids steeper and higher ones, to its northwest, southwest and especially southeast and eastern sides. (Image 28). A sketch of the Avenida 17 de Dezembro was included in one of the cadastral plans, the *Planta Geodésica* (Image 19) apparently connecting some dots in the landscape, one of them being the above mentioned Cruzeiro.

<
Image 25:
Retracing of the 1895 plan, highlighting the contrast of rivers and grid.
Source: By author, 2019. Data from historical maps available at APM and APCBH: *'Planta Geral da Cidade de Minas, 1895;*

In the suburbs, however loose its design, the same topography strategy was applied: streets meet forming starts which centres are squares located at hilltops. The suburban mesh, which followed no apparent rule seems to have been designed according to elevations and viewpoints. From this point, we understand that the city was not designed from the engineer's detached and abstract perspective, but from a bird's eye view, offered by Belo Horizonte's many viewpoints. In Image 22 it is possible to see how

the highest points coincide with places for public squares, although the plan was not strictly followed in the suburban zone.

2.2.2. Vegetation

The municipal Park is another feature of Belo Horizonte's plan that is instrumental to understand how the making of the city inscribed itself within the existing but also heavily transformed landscape. The park is exemplary of the deliberate construction of nature's pivotal role in Belo Horizonte's plan. (Correa, 2006).

In the context of the increasingly industrial and congested (European and North-American) city, the figure of the urban park was invented as a nineteenth-century urban landscape infrastructure (Waldheim, 2006, p. 39) once-rural landscapes became more and more distant from city life. According to Adrian Gorelik (1998), the park and the grid are both instruments of social reforms in which models of state and society are imprinted. As instruments of urban intervention, they are also precise cultural and political projects which define how the city's public sphere should take shape.

Thus, in Belo Horizonte, the urban park is, together with its grid, one of the necessary ingredients to shape a city. It was placed strategically in a meandering part of Ribeirão Arrudas, the larger creek in the city and a tributary of Rio das Velhas, at the place where it meets two other tributaries and where its northern margins become steeper. Although the landscape was an essential asset for placing the park, that did not exclude its transformation, adapting nature to human's desires and needs. Evidence of the intentional manipulation of the ground is the transformation of the site's 'original' nature – it was already a landscape domesticated by agriculture - tailored into a garden by means of canalising its creeks and forming small dams. Some authors have argued that the Park, placed at the heart of Belo Horizonte – actually occupying one of the edges of the Urban Zone -, was meant to embed the symbolism of a natural refuge in contrast to the ordered city (Magalhães & Andrade, 1989). However, there was very little undomesticated nature in it. Such a nature refuge was, in fact, a constructed nature, as it was aesthetically designed just as much as the grid, however less geometrical and more organic, by the architect Paul Villion, hired by Reis (ibid; Correa, 2006). The Image 54 demonstrates that the area where the park was placed was before actually a farming area with a few settlements. Its construction demanded, therefore, the erasure of the existing farming landscape and the construction of a new architect-

> Image 26: Plan of 1895 over the cadastre plan of the Arraial de Bello Horisonte of 1894. Source: By author, 2019. Data from historical maps available at APM and APCBH: *'Planta Geral da Cidade de Minas, 1895'* and *'Planta Cadastral do Arraial de Bello Horisonte, 1894'*


7,5 km
5 km
0
0,5
1
2km
Plan of 1895
Railway
Water
Streets Arraial
Buildings arraial
Parque

1:25.000

designed one.

As the city materialised, the efforts in transforming a demolished village surrounded by farms into a gardened city were significant. A newspaper note from the time has witnessed the purchase of mature trees for the newly built Municipal Park ("Nova Capital," 1896). The extensive works necessary to build the park lasted some years after the inauguration of the city, on 12th December 1897, not to mention the constant maintenance required for the park's upkeep until today. The report of the mayor Bernardo Pinto Monteiro published in 1902 covering his administration and his predecessors between 1889 and 1902 has provided some evidence:

> *"The extraordinary services done in the Park have consisted of the construction of a dam wall for the 'Acaba Mundo' [tributary creek to Arrudas] and small gutters beside the path, cuts and fills, which appear in the annexes.*
>
> *The extraordinary services in charge of the permanent staff responsible for its conservation, consist of great movements of earth, placement of gravel in the diverse paths, planting groups of trees and their conservation, which results in a diligent work, everyday, besides the planting of grass, placement of compost and clearing of the creeks inside its perimeter.*[36]" (P. M. de Belo Horizonte, 1902, p. 42)

The mayor also mentions the conservation of a plant nursery which serves for the vegetation of streets, also suggesting that the State should sponsor its expansion so it would be possible to sell to privates and other municipalities in the State. The example of La Plata is provided, which, only in 1901 was able to distribute 84.861 trees to the municipalities (ibid).

Interestingly, in the following paragraph, the report mentions the great devastation of the pre-existing forest for the construction of the new city, which had been strictly forbidden by the Prefecture, especially at the river source areas (ibid). As a mitigation measure, the municipality was replanting in the deforested areas to neutralise the effects of destruction and, thereby, replace nature. Art. 71 of Decree 1211 of 1898, prohibits deforestation without the consent of the Municipality. Anyhow, the cutting of mango trees was always forbidden, since they were considered a source of local income and progress (P. de Belo Horizonte, 1898). This sort of consideration shows that the construction of Belo Horizonte did not occur in the total indifference of its natural setting, whether productive or not.

Within the project of constructing a new landscape, planting efforts were also remarkable. As adult trees were very soon imported, lines of trees were put in place before houses were built and the new population moved in. While the houses were not yet built and the city was not yet fully materialised, the city's actual structure - composed of streets, pioneer public buildings and the treescape – was already apparent.

2.2.3. Water

As the city construction expanded, the mismatches between the orthogonal grid and the original landscape soon became problematic. Another pressing issue in Belo Horizonte's embedding in nature and the construction of a new landscape is the question of water. By comparing the ground conditions registered in the village's cadastre map to the plan of the city, it is possible to see the how the grid violently crosses the pre-existing water courses streaming down from the Southern hills towards the Arrudas river (Images 24 and 25). In the study entitled *'Rios Invisíveis da Metrópole Mineira'* (2016) the geographer Alessandro Borsagli states that the plan proposed for Belo Horizonte, as well as its construction, has ignored the rivers even though the locality was chosen due to the richness and purity of its water bodies.

The careful representation of the water bodies and springs in both the *Planta Geodésica, Topográfica e Cadastral do Arraial* (Image 19) and the P*lanta da Cidade de Minas* (Image 21), as well as in the extensive report presented by Dr. César de Campos (Capital, 1893), regarding the situation of water catchment during the survey years, tells us the opposite. There was, instead, extensive knowledge about the location of water and its volume. However, such knowledge was directed at domesticating waterways for the comfort of men. The information acquired in such surveys were indispensable for the catchment of upstream water in order to serve the city and the canalisation of rivers, forced to follow the mathematical partitioning of space. Despite all the data gathered, water soon became one of the most severe problems of the capital, either delaying its constructions because of canalisation works or due to the lack of water supply that struck Belo Horizonte's population already in the 1930s (see next chapter).

In 1916 the sanitary engineer Saturnino de Brito – who was briefly chief of the water supply section within the *Divisão de Estudos e Preparação do Solo* (Division of Study and Preparation of the Soil) during the construction of Belo Horizonte – made a critique of Belo Horizonte's plan, preparing an alternative proposal to the treatment of the rivers. Brito's plan tried to

reconcile the orthogonal grid with the tracing of the rivers, which followed their natural course, instead of going around the blocks orthogonally (Brito, 1944 (1916)). Considering the approach towards landscape characteristics at the time, even Brito's design would probably have failed to avoid the canalisation and later covering of these rivers. However, the alternative design would perhaps have avoided great expenses and efforts spent in the rectification and deviation of rivers to adapt to the inflexible grid. At some points, creeks have been forced to bend in a 90-degree angle, causing recurrent floods up until today. The geometrisation of nature had therefore severe consequences.

Water had also conditioned some later changes made to the plan when it was under execution. Initially, a zoo was foreseen in an area with the presence of springs as a mean to preserve them, which is also evidence of the desired respect for the water in the initial plan. However, at the end of the 1930s, the Zoo creek – as it was later renamed - and also the Leitão creek had already been canalised, allowing the urbanization of that region. Instead of a zoo, a park was designated for that site, the Parque Santo Antônio, a great public sports complex which later became the privately-owned Minas Tenis Clube (see next chapter). As much as they were tamed and deviated, water bodies were also able to deviate streets, on rare occasions. In the southwestern portion of the urban zone, the last to be urbanised, the Curitiba street deviates to meet Marília de Dirceu[37] street - an addition to the original plan - as to form a small square at their confluence, a place of urban encounter and serendipity amongst the sterile monotony of the grid in that area.

It is possible to notice, therefore, between the idealised plan and its materialisation, an intentional and aggressive embedding of the city within nature, constructing a new desired urban landscape. In Belo Horizonte, is noticeable the tensions between taking advantage of and giving value to topography, water and vegetation, while at the same time manipulating it drastically. While water was a main feature for choosing the site for the new capital – close to the Rio das Velhas river and with an abundance of creeks, it was seen more as a resource to be used than as a present figure in the designed landscape. The Rio Arrudas, which appears already canalised in the 1895 plan, was never intended to have a strong presence in the city. After being hidden and tamed by a canal, its valley served more as a buffer zone between Urban and Suburban zones. Such function was confirmed by the implementation of the railway and later of industry along this valley.

Although some precautions were initially taken for the preservation of springs and catchment areas, those highlands later became valued areas for


Planta A: Traçado Geometrico
Planta B: Traçado Sanitario
Pl. IX
Planta de Bello Horizonte (MINAS)

urbanization. Although the distribution of some avenues and programs were based on their topographical situation, extensive ground manipulations were done in other areas to fit the rigid grid proposed by Aarão Reis. As for the vegetation, what was seen was the deliberate substitution of the pre-existing landscape, erasing what was there and planting new species in an organised manner, lined in avenues or conforming a picturesque garden at the Municipal Park.

Seeing the planning and implementation of Belo Horizonte in its larger territorial frame through the lens of landscape has allowed therefore to give texture to the ambivalent relationship of the city with its territory.

2.3. First investments

Without a doubt, Belo Horizonte makes an impressive case in nineteenth-century urban planning in Brazil with very few precedents in the world. This is not only due to the scale, audacity and comprehensiveness of its plan, but mostly because of its materialisation. Shifting the analysis of its history from an urban planning perspective that foreground its plan to an engineering perspective with a focus on the material investments applied allows bringing new lights into the magnitude of the infrastructural investment applied in the construction of Belo Horizonte. Looking at the construction of Belo Horizonte first spaces through the lens of investments will allow moving away from the protagonist role of its 1895 plan, investigating how the city becomes a physical reality. This section will focus therefore on the efforts done in the material construction of the city, as well as the mobilizations for converting farmland to urban plots, through the urbanization and commercialization of plots. In regard to this last aspect, the implications of the term investments is a double one. Not only the urbanization of streets, marking of terrain and sales of plots meant large investments in terms of time and labour applied, but the aggregated value attached to plots was a State strategy for financing the works, configuring therefore, a meaningful real estate investments.

< Image 27: Alternative plan for Belo Horizonte by Saturino de Brito. Source: Brito 1944

Building a city from scratch requires very basic urbanisation works such as landfill and levelling, water supply and sewage. In theory, those are all necessary at once. In the context of limited resources, as in the case of Belo Horizonte, some of these had priority. As extensively discussed in the *Assembléias Constituintes*[38] , one of the arguments against the construction of a new capital was the financial crisis faced by the State which meant limited resources for its construction. For some, these would be better

spent if directed to the modernisation and industrialisation of Ouro Preto.

There were, therefore, two simultaneous categories of infrastructure works: the ones requiring a minimum investment for erecting an instant city that functions minimally and can start receiving the new population; and the maximum investments for the long term that will incrementally build up the city's material legacy. Long term infrastructural investments meant, for example, the installation of sewage, water and electricity networks while, for the short term, the Arraial expropriated homes were made available for engineers and other professionals involved in the city construction.

The Decree 680 of 1894 that preceded the approval of Belo Horizonte's plan distinguished between the overall project from its initial implementation in Article 3:

> *"The general project for the new capital will be delineated over the basis of a population of 200.000 inhabitants, and over this same basis will take place the division and marking of the plots; however, the works to be executed since now, will be projected over the basis of 30.000 inhabitants; forcing, however, the respective projects to be organized as to allow the natural development of the works executed in the proportion that the population grows[39]"*
> (O. E. de Minas Gerais, 1894)

Therefore, while the plan foresaw a total population of 200.000, with the simultaneous existence and growth of Urban, Suburban and Rural zones (see further), only part of the works would be executed by the State in the first moment. The strip to be delivered by the CCNC before the city inauguration contained only the necessary elements for the functioning of a capital: the railway station, a few public buildings, a part of the grid with plots and houses for the public functionaries to be transferred. Since Law n.3 of 1893 additional to the Constitution, determined the timeframe of four years for the capital's transfer of the Capital, Belo Horizonte was founded already on 12 December 1897. By this time, only a small part of the plan had been completed, and the city remained a construction site for many years (Barreto, 1996).

The very first infrastructure to be implemented was the extension of the railway line from the Central Line passing through Sabará towards Belo Horizonte and with it the construction of the Central Station. This connection with the national railway network was a condition imposed by the Study Commission, deemed fundamental for bringing building material and other supplies to the city since its location was, until then, very disconnected despite its geographic centrality. Other immediate

> Image 28: Sections accross Belo Horizonte's foundational core, superimposed by its 1895 plan.
>
> Vertical scale proportion: 3:1
>
> Source: by author, 2019 with data from Prodabel.


Cruzeiro
+950
Floresta
+860
Liberdade
+895
Federação
+895
Cemitério
+890
0
1
2km


Central Station
Arrudas River
Park
Hospitals
1.500m
500m

actions were the studies for water catchment and the opening of quarries, the first being the one of Acaba Mundo, at the foot of Serra do Curral at the Southern end of the city, in 1895.

The installation of networked infrastructures such as railway, water and sewage was not only crucial for urban development and for the comfort of Belo Horizonte's future population, but they also were emblems of modernisation and progress. In this sense, the construction of Belo Horizonte epitomized the formation of the modern metropolis, which, as other modern cities, "became a hotbed for innovation and a maelstrom of social, cultural and economic change as the new notions of speed, light, power and communications were constructed" (Graham & Marvin, 2001b). It became, therefore, the ideal experimental ground for engineers to realise technological progress. It is meaningful for example that the public street lighting was delivered just a few days before the city inauguration, while water piping and sewage works were still incomplete (Singer, 1968). As a priority was given to visible infrastructure, it was thus more important to look ready than to actually be ready.

Hence, investments were directed at those elements that were necessary for the everyday functioning and also for the symbolic image of the new city: railway, public buildings and the urbanization of the strip for the first 30.000 inhabitants. In parallel, the State invested in the agricultural colonies, which were less visible and less permanent – as they very soon became urbanised (See Image 44) - but were nevertheless meaningful in the context of Belo Horizonte's suburban development (see further section). Looking at Belo Horizonte's occupation in 1928-29 the consequences of these first investments are evident, as the built area corresponds basically to two logics: the built strip in the Urban Zone, and another along the Arrudas valley and therefore along the railway. Initially implemented connecting Belo Horizonte to Sabará towards the East, in 1917 the railway was expanded towards the West seen the large population already living in those areas.

The works completed in the four years of construction were: the topographic and geodesic study of the entire area, several landfills, the construction of the railway branch connecting the Capital to the Central do Brasil Railway; the canalization of water and sewage, the construction of three State *Secretarias*[40] (Interior, Agriculture and Finances) and the Police Department buildings, 38 public buildings, 224 houses for public functionaries, houses for the State Secretariats and the Chief of Police. Others were almost finalised: the Presidential Palace, the police barracks, the Press buildings, the Secondary School, the Court of Justice and others (Minas, 1898; Singer, 1968).

<

Image 29:
Transect representing the current condition on a section accross the Arrudas Valley, picturing the Municipal Park on the right and the Floresta neighborhood on the left - orinally included in the Urban Zone, but its construction did not follow the plan. Part of the area originally reserved for the park was later donated to the construction of hospitals and became the 'health quarter'of Belo Horizonte.

Vertical scale proportion: 3:1

Source: by author, 2019 with data from Prodabel.

Immediately after the inauguration, the CCNC was dissolved and the Prefecture of Belo Horizonte was established, which meant an institutional reorganisation which also had its effects on the construction of the city. Until the mid-1940s, the city did not have a complete administrative autonomy, being the direct object of State control. Its initial institutional framework was different from other municipalities in Minas Gerais, which had elected chamber members. In Belo Horizonte, Law n. 3 (1893) had designated the Governor to be in charge of the city's administration, allowed to directly nominate mayors and create special commissions for governing the city. Comparably to the CCNC, the *Conselho Deliberativo* (Deliberations Council) was created in 1899[41], in charge of only voting taxes and approving city budgets. The administration of Belo Horizonte was, therefore, highly concentrated in the hands of the State Government for almost four decades[42].

Soon after the city's inauguration, on December 29th 1897, the Municipality was created, named Prefeitura da Cidade de Minas.[43.] From January 4th of the following year, the municipality took charge of the water, sewage, railway, lightning, and selling of urban plots, while the Secretaria de Agricultura, comércio e obras públicas, Secretary of Agriculture, commerce and public works, became responsible for the selling of suburban plots and the completion of public buildings.

Due to the difficult financial situation of the State, one of the solutions found for financing the city's construction was the commercialisation of plots (Singer, 1968). Besides necessary infrastructure provision, the opening of streets and the marketing of plots became, therefore, a priority. In the process of commodification of nature (Graham & Marvin, 2001), soil gets converted in plots by aggregating use value, and water is transformed into pipped water.

After the official plan was approved in April 1895, the CCNC started to distribute plots by public auction and through concessions, as promised by the State Constitution. On 31st July, concessions were allocated through a lottery system, according to the requests made by the beneficiaries: 591 urban plots and 35 suburban ("Nova Capital. Termo de sorteio dos lotes destinados aos proprietários de casas em Ouro Preto," 1895). Some of the first suburban occupiers were members of the CCNC or well-established wealthy families, which shows that the suburbs were also chosen by the wealthy. According to the list published in the Almanack da Cidade de Minas, by Joaquim Lima in 1900, Adalberto Diaz Ferraz, the first Mayor of Belo Horizonte, lived at Rua do Chumbo in the suburbs of the capital, as also did Francisco Bressane de Azevedo, the director of the Official

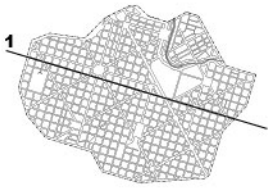
Press. (Aguiar, 2006, p. 162).

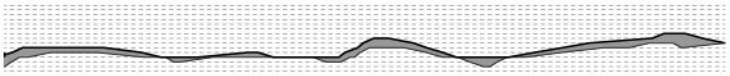
On 5th July of the same year, the first public auction listed a number of plots for sale in the 1st and 2nd Sections, closer to the Central Station. Later, another auction launched on 6th November determined the minimum prices for each group of plots, in the Sections 1, 2, 3, 4, 5, 7, 9. Only one year later, in July 1896, suburban plots were put to auction, in Sections 1 and 6. Interestingly, two aspects of the proposals were considered by the commission for deciding the winner: the price offered, and the time predicted for construction. Therefore, the speed in which the buyer promised to construct was a valued asset, as it was important that the city materialised rather fast.

However, according to the Commission's report of 1896, by 10th August of that year, only 135 plots were sold out of the total 2518 that were available for sale (Le Ven, 1977, p. 34). Later that month, the government acknowledged that the system of public auction was not very efficient and was, therefore, delaying private constructions in the new capital[44]. Decree 959, launched on the 20th August 1896, authorised the chief of the CCNC, Aarão Reis, to make direct sales of any plot marked in the approved plan, either in the suburban or urban area. Proposals should be sent to the CCNC, grounded on the prices set for similar plots by previous auctions. It is important to observe that although the entire plan was available for sale, only a first strip for 30.000 inhabitants was going to be built by the construction commission, while the rest - which includes the suburban area - was going to be built later, as the city expanded. It was not clear, however, when this would happen. Therefore, it was possible that plots were sold without being properly marked on the site and without proper urbanization.

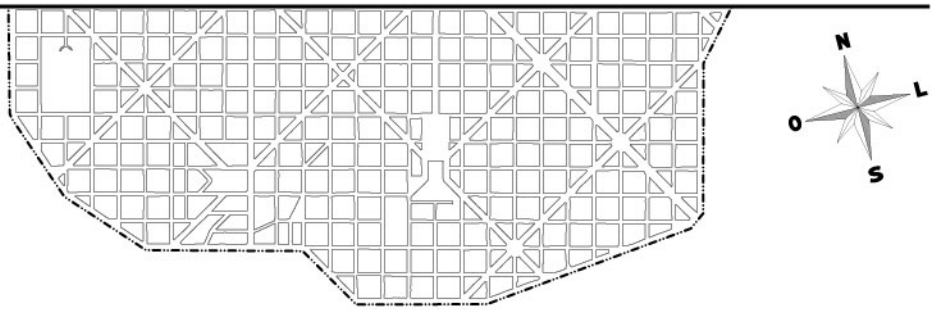
Although no zoning was fixed, the area around the Central Station was pre-destined to serve as a city centre. In the public notice announcing the first auction of plots, on 11th July 1895, this area is marketed: "some [plots] situated on the proximities of the Central [station], on the avenues which will connect it to the centre of the future city and the proximities of the market, are in magnificent position for commerce, factories and big warehouses; others situated in the large avenue - Afonso Pena - or its proximities and the Parks, are destined for pleasant residences, with splendid views to the station, church and other points."[45] (Leal, 1895) The prices in this area were purposefully higher, since the infrastructural works had already been done, which included significant ground manipulations.

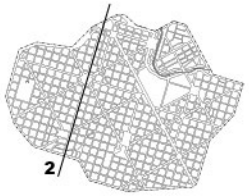
In fact, a significant investment that cannot be ignored is the extensive ground manipulations necessary for the city's construction, since hills and

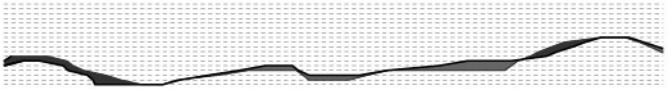




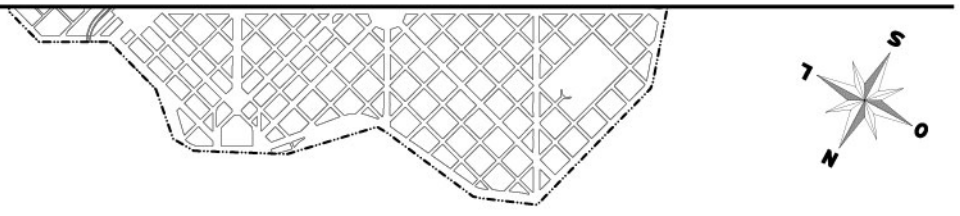
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2



rivers had to be forged into a new landscape, as exposed in the previous section. This implied massive land cuts and fills and the canalisation of rivers, which began with the opening of the first avenues and implementation of the first neighbourhoods, an ethos that continues throughout Belo Horizonte's history until today (Botelho Almeida, 2018). According to the calculations of Fialho & Santos (2015), based on digital modelling, the total volume of earth moved inside the urban zone in one hundred years of history was of 51.488.303,01$m^{3,}$ The vast majority, 30.481.427 m^3 was in the first three decades, according to data collected from the mayor's reports. While such impressive numbers might be difficult to grasp, sections and photographs are the best testimonies. (See Images 30 and 47)

Thus, what seemed like an isotropic plan begins to gain texture as visible and invisible infrastructure works – underground water networks and over ground streets and electricity – were developed on several fronts. Through State power, the farming village is transformed into city, allowing for the gradual settlement of its immigrant population. Influenced by infrastructure, the city begins to develop first in its lower lands close to the rail station, which then developed to be the city centre. Slowly, the elites began occupying the slope ending at the Presidential Palace while the poorer rapidly spread over the hills across the valley in the Suburban Zone, along with the railway and the agriculture colonies (Guimarães, 1991; Barreto, 1996 [1936]).

2.4. Constellations

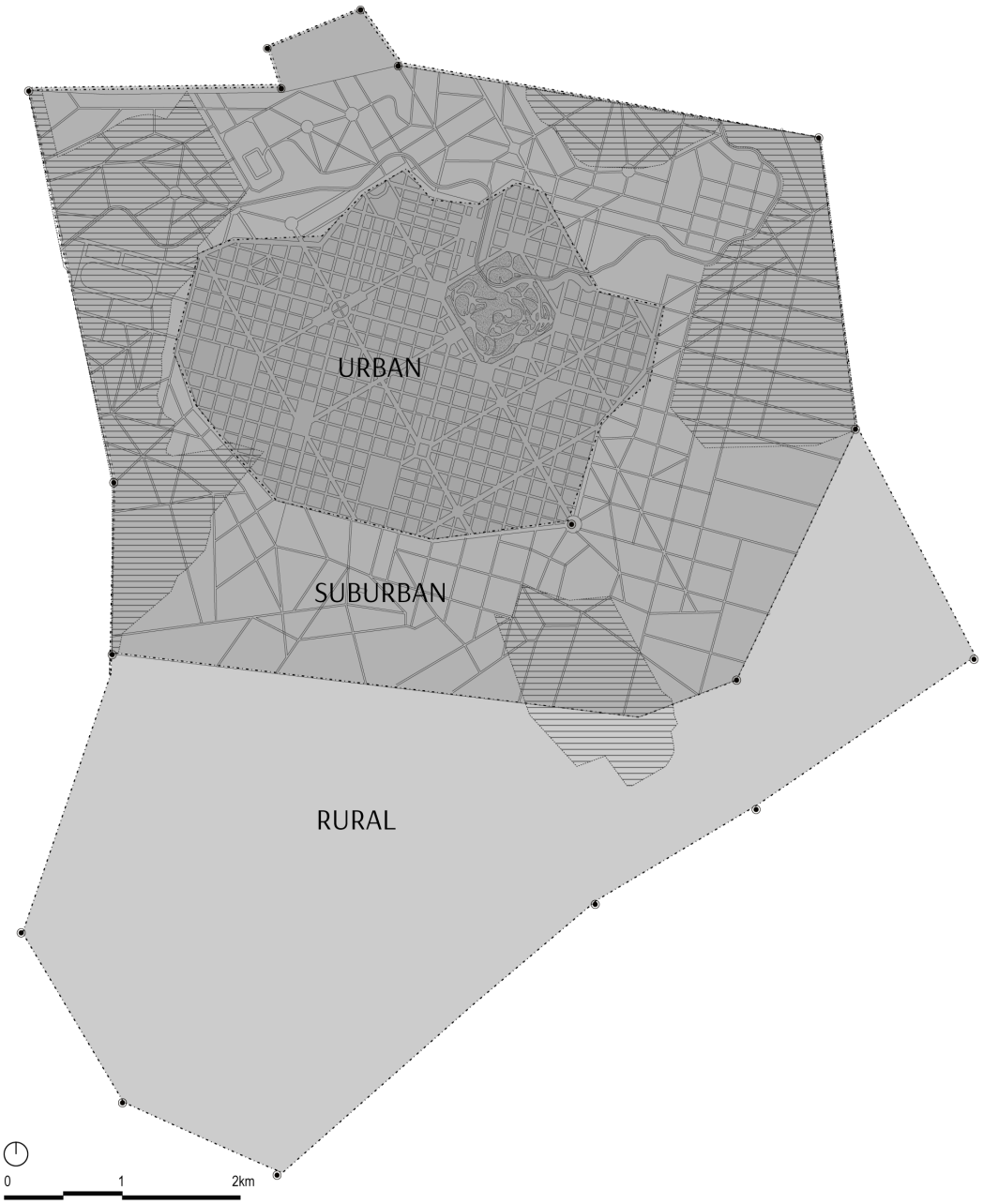
Most of Belo Horizonte's historical research has focused on the planning and implementation of its central core, the urban zone, with its geometrical grid and its public buildings, while few studies have been dedicated to the rest of Belo Horizonte's territory (Aguiar, 2006).

Seeing the foundation of Belo Horizonte's foundation through the notion of constellations allows the integration of what might be conceived as non-urban to the analysis, which is anyhow constituted together with the urban (Cronon, 1992b). More specifically, it enables better understandings of what was conceived as urban, suburban or non-urban – rural, agriculture - in the specific momentum of the city foundation. More importantly, an appropriation of the Benjaminian understanding of term constellation suggests that these categories cannot be understood as separate entities, but always in relation to each other.

< Image 30: Sections accross Belo Horizonte's urban zone comparing the original topography and current, revealing the volume of cuts and fills (grey areas)

Vertical scale proportion is 5:1

Source: by author, 2015, with data from Prodabel and historical maps available at APM and APCBH: '*Planta Geodésica, Topographica e Cadastral da Zona estudada, 1895*'.


URBAN
SUBURBAN
RURAL
0
1
2km

Another dimension of constellations portrays Belo Horizonte's making as an urban assemblage, made of several simultaneous and intertwined plans and processes, happening at several spheres, places and scales. More specifically, it attends to "why and how multiple bits-and-pieces accrete and align over time to enable particular forms of urbanism over others in ways that cut across these domains." (McFarlane, 2011, p. 652)

Although Belo Horizonte was built as a new city conceived with the purpose of constituting the administrative centre of the State, it is important to stress that the new town did not completely wipe out the Arraial and its dwellers, who participated jointly in the city construction. Important accounts of the co-living of villagers and builders are the ones of Padre Francisco Martins Dias (1897) and, after him, the historian Abílio Barreto (1996 [1936]), both witnesses of the city's construction. Before the 'official inhabitants' arrived - the public functionaries, officials and politicians to whom plots where later given and eclectic houses provided - Belo Horizonte's population was incrementally built up by villagers, engineers, journalists, builders, salesman and even farmers who experienced together the everyday demolition and construction of the new town, while the site was still trapped something between an Arraial and an administrative capital.

The following analysis is subdivided according to Belo Horizonte's main categories established in Reis' plan: urban, suburban and rural. Despite this artificial classification, they are analysed as simultaneous and intertwining constructions in the materialisation of an urban constellation, composed both of "urban" and "non-urban" elements.

Firstly, an analysis of its gridded urban core is presented, attempting to go beyond a simplistic understanding of its planned urban form and also exposing its process of materialisation. Next, the analysis moves beyond the urban core, the usual focus of attention, to understand how what came to be termed as the Urban, Suburban and Rural Zones of Belo Horizonte evolved during and after the momentum generated by the foundation of a new state capital.

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Image 31:
Division of zones according to the Plan of 1895, superimposed by the agricultural colonies
Source: By author, 2019. Data from historical maps available at APM and APCBH: *Planta Geral da Cidade de Minas organizada sobre a planta geodésica, topographica e cadastral de Belo Horizonte, 1895'and '"Estado de Minas Gerais: Planda dos terrenos demarcados para a fundação da Cidade de Minas"*, 1898;

2.4.1. Urban

In May 1895 Aarão Reis, the chief engineer of the CCNC - the commission of engineers formed to construct the capital – launched the plan for the new capital of Minas Gerais. As a son of the Escola Politécnica, his plan for Belo Horizonte was laden with references to circulation, fluidity, accessibility, speed, etc. The application of an orthogonal grid over an

undulated landscape is proof of the adherence to Descartes' vision: "streets laid out in straight lines, intersecting at right angles, buildings of uniform design and size, the whole built according to a single, overarching plan"[46] (Scott, 1998, p. 55). Political economist James Scott, in *Seeing Like a State*, has enumerated a few important aspects in the use of geometric order in the planning of human settlements. He states that such an order is most evident from above and from the outside – and not at street level – since these perspectives facilitate its legibility for the outsider. As an entirely new city, it was important that Belo Horizonte would present such clarity. The geometry, homogeneity and uniformity of land property were also convenient as a standardised commodity for the market. However, while such order may prove useful for the authorities' ambitions over a newly constructed space, it may be less so for its inhabitants. In this respect, Scott affirms that: "we must remain agnostic about the relation between formal spatial order and social experience." (ibid, p. 58). What is meant by Scott is that the order of streets does not necessarily means a better social order, or anyhow a better life for its inhabitants. More detailed further, the geometric order of Belo Horizonte's urban core did not mean better living conditions for all. Nevertheless, such order was only intended to part of the city - as we shall see further – perhaps already identifying the impossibility of the State's full involvement in Belo Horizonte's urban development.

The plan of the city was thus divided into three zones - Urban, Suburban and Rural. The Urban zone, occupying 8,815,383m^2 was organised in a rigorous orthogonal mesh distancing 120x120m, crossed by diagonals at 45º, punctuated by squares at their meetings and circumscribed by a perimetric avenue. Surrounding it, a Suburban Zone of 24,940,830m^2 would contain asymmetrical blocks divided in plots with diverse surface areas and streets traced according to topography. Lastly, a Rural Zone would serve as a farming area, supplying the new city. In the planner's memorandum that accompanied the publishing of his plan, the separation of zones and the placing of the streets respond to administration and rationalit[y47]. The engineer did not refer to the natural features of the pre-existing landscape as guiding principles, as if the plan – or the planner – refused to bend itself to nature (Barreto, 1996 [1936]). While the streets in the Suburban Zone should, according to him, adapt to topography (ibid), the ground – and also underground – in the Urban Zone would suffer profound transformations in order to adapt to the street layout, geometrically distributed. Despite the descriptions offered by Aarão Reis' report (1895), the choices and influences of this planner are very poorly documented, probably due to his premature alienation from the CCNC in May 1895, shortly after the plan was published, more than two years

before the city inauguration (Barreto, 1996 [1936]).

The priority given to order, flows and hygiene is usually attributed to a personal choice of the engineer Aarão Reis, given his technical training and positivist inclinations (Salgueiro, 2001). However, what Belo Horizonte's historiography usually overlooks, is Decree 803 of 11 January 1895. Formulated four months before the publishing of Reis' plan, which set some ground for the *Planta da Cidade de Minas*. The decree was signed by the engineer Francisco Sá who directed the Secretary of Agriculture at the time, namely the administrative unit directly involved in the city construction. In its second article, the decree says: "Its area [the new capital] will be divided in sections, blocks, plots with necessary space, avenues and streets for the fast and easy communication of its inhabitants, good ventilation and hygiene"[48]("Decreto n. 803, de 11 de Janeiro de 1895," 1895). The rationality and the priority to circulation of air and people given to the plan were therefore already pre-determined by this decree in the same way that the hygiene was a pre-condition present since the congressmen's discourses about transferring the administrative capital around 1890-1891, as seen at the beginning of this chapter. Such priorities reflect the general impressions of the inadequacy of Ouro Preto, which was seen as inaccessible, tortuous and insalubrious but, most and foremost, they are a reflection of their times.

Transfer of models?

For the historian Heliana Angotti Salgueiro (2001) the plan for Belo Horizonte not only exemplifies the status of urbanism and architecture at the end of the nineteenth century but also the transfer of models that is, in her opinion, so common in Brazil. Unquestionably, Belo Horizonte shares with precedents such as Washington D.C. and La Plata the application of a holistic plan guided by the principles of rationality and order. This is most evident in the choice of the orthogonal grid by the chief organiser of their plan, the use of the diagonals for enhancing perspectival views and monumental public buildings, and maximising circulation efficiency. However, as argued by Corboz (2003), while unpacking Washington's plan, "it is not enough to identify an antecedent to conclude that it constitutes a precedent."[49] Instead of seeing the plan for Belo Horizonte as a transference of models from Washington D.C., Paris or other similar plans, as several historians have repeatedly argued[50], this thesis emphasises the plan as a product of an assemblage of thoughts and decisions which had momentum in Belo Horizonte's foundation.

Searching for the origins of the use of gridded systems in new cities Galantay (1977) has concluded that it is practically impossible to give its precise origins, as early antecedents of the urban grid can be found in diverse contexts such as Roman, Hellenistic, Greek and Assyrian practices, in the Chinese Chou dynasty (1123-256 b.C.), or in pre-Columbian America. For him, the ubiquitous use of the grid by civilizations so far apart in time and space contradicts the idea that the urban structure is a spatial ideogram of the economic organization and the cultural values of a society (ibid). Their motivations can be justified on religion, as in some cultures the space is organized in alignment with the cardinal points; or on the order and discipline of a military organization, as it was the case of the Roman Camps. (ibid) Often associated with the Roman camps, the Anglo-French bastides or the Spanish colonies in America, the urban grid has in fact much ancient origins (ibid; Home, 1997).

Despite in a context very far from Belo Horizonte, both in spatial and historical terms, it is possible to find some similarities between its plan and implementation to the politics of planning and planting British colonial settlements. In '*Of Planting and Planning: the making of British colonial cities*' Robert Home (1997) has enlisted some of the main ingredients of Britain's 'Grand Model', a model of colonial settling which gradually emerged around the 1600s and lasted until at least the 1840s. They are:

> *"1. a policy of deliberate urbanization, or town planning, in preference to dispersed settlement; 2. Land rights allocated in combination of town, suburban and country lots; 3. The town planned and laid out in advance of settlement; wide streets laid out in geometric, usually grid-iron form, usually on an area of one square mile; 5. Public squares; 6. Standard-sizes, rectangular plots, spacious in comparison with those in British towns of the time; 7. Some plots reserved for public purposes; and 8. A physical distinction between town, country, usually by common land an encircling green belt."* (ibid, p. 11)

Speaking of planned cities, some of these ingredients are of course obvious components. Also, by the time of Belo Horizonte's plan, some other predicaments were already common for other planned cities, such as public squares, the grid-iron form, the reservation of plots for public purposes, etc. However, a feature that finds special resonance in Belo Horizonte's planning, is the physical distinction between town, country and a green belt, applied in Belo Horizonte as urban, suburban and rural zones. This town-county symbiosis is also present in Ebenezer Howard's garden-cities idea (Choay, 2005 [1965]), which is contemporary to Belo

Horizonte's foundation. Although alignments and coincidences can be found, they are not sufficient for drawing direct connections that might suggest some influences. On the contrary, the example is brought up to demonstrate that what was seen in Belo Horizonte is not so unique and to make evident that the exchange of knowledge on how to 'plant' new cities is quite significant, going much broader than some of the 'influences' which has been pointed in Belo Horizonte's historiography, Washington D.C. being its most dominant.

André Corboz's reading of Washington allows for a brief comparative analysis with Belo Horizonte's plan, revealing, in fact, more differences than similarities. As its precedents, Belo Horizonte presents an orthogonal grid on which a diagonal mesh is superimposed. The city blocks of 120 metres are rigorously drawn with equal sides and all diagonals form a 45º angle in relation to the smaller mesh, perpendicular to each other and equally distributed. In opposition, as Corboz has demonstrated, Washington's grid is neither continuous nor symmetrical like it might seem. Dissecting its plan, Corboz has shown how its blocks are in fact very irregular in shape and orientation. This challenges the associations of Washington's' plan with the Baroque regularity found in Versailles and Saint Petersburg, which allegedly served as inspiring models. The 'poetic of irregularity' that Corboz has discovered in Washington's mesh is not found in Belo Horizonte's orthogonal mesh.

The main feature of Belo Horizonte's plan that connects it to Washington and Baroque urbanism more generally is the importance given to the diagonal avenues, functioning as green boulevards connecting important parts of the plan. Nevertheless, by analysing Belo Horizonte's avenues and monuments, some further shifts can be identified. Furthermore, the fragmented and incremental character of its construction process has resulted in many changes from the initial intentions, making Belo Horizonte's built form even more distant from its alleged models.

Diagonals and Monuments

The main avenue in Belo Horizonte's plan is the Avenida Afonso Pena, running in the Southeast-Northwest direction, slightly dislocated from the Urban Zone's geographical centre. As exposed in the previous section, it is possible that this avenue was located as to take advantage of the panorama offered by the Serra do Curral, connecting the highest point of this zone to the lowest. Its importance was guaranteed by the location of some important programs and its 50 metre-width, contrasting with the other avenues (35 meters wide) and with the ordinary streets (18 meters wide).


B. Horizonte 1947
A. 65


SSE

In Reis' descriptions of the plan, the central avenue would force the city occupation "when possible, to develop from the centre to the periphery, as it is convenient to the economy" [51] (Barreto, 1996 [1936], p. 251).

Contrary to the prescriptions of the Baroque plan and to what occurred in Washington and Paris, monumental buildings in Belo Horizonte are placed right in the middle of its central avenue. They face the Park, instead of being at its endpoints, denying the perspectival accentuation of their monumentality, as it is seen in Paris for example. At the meeting with Avenida Alvares Cabral, the plan placed the Congress and the Palace of Justice, separated by a square, the Praça da República. The plots reserved for those buildings have their long edge facing the Avenue and the Park, suggesting that the main façade will face the former rather than the square - and therefore not each other. Next to the Congress, a plot was reserved for the Telegraph building, whereas the Theatre would be placed diagonally vis-à-vis the avenue. Its monumentality and visibility would be guaranteed by the Praça Tiradentes, where the space widens up at the encounter with one of the Park's corners. With few exceptions, public programs are slightly dislocated from the diagonal avenues. These spatial relations downplay the idea that perspectival views were primordial in Belo Horizonte's plan. This change was perhaps based on the recognition that the undulated topography of the site would make any effort vain. The topographic manipulations seen in the implementation of the plan were not intended to match the Baroque tenets, but to make straight streets possible.

< Image 32: View of Avenida Afonso Pena towards the Serra do Curral in 1947. On the left side is the Municipal Park. Source: APCBH, coleção José Goes

A case in point is the Avenida Afonso Pena: it connects the lowest point, hosting the Market with the Arrudas River and the railway as its backdrop and the highest point, hosting the Cathedral, with the panorama of the Serra do Curral. From an aerial view, the predicated Baroque tenets of connecting two important buildings and enhancing their monumentality at both ends is obvious. However, besides the significant distance between them (3 km), the linearity of the avenue is confronted with topographical features hindering any perspectival intentions, and interrupting the panoramic views.

Instead of focusing on a monument such as the Cathedral, the perspective provided by the Avenida Afonso Pena frames the view of the Serra do Curral, with its monumentality enhanced by the topographical difference with the centre. The effect, most striking in historic photographs, is still noticeable despite the verticalization of the area. (See Images 32 and 36)

< Image 33: View of Praça Raul Soares in 1938. On the bottom left is the city market. Source: APM

Although the Cathedral was never erected, the proposed scenario composed

by a church looking down onto the city, with the Serra do Curral in the background is more reminiscent of Ouro Preto than of Belo Horizonte's alleged exogenous models. It also suggests that Belo Horizonte's plan makes direct connections to the former capital instead of denying it. Despite Reis' initial intentions, the sites chosen by the Church for erecting their sanctuaries were close to the centre. One of them was built as the exact replacement of the pre-existing colonial church, the last building of the Arraial to be demolished. It is interesting to point out that although most locations remained reserved for public programs for many years, few of these were built along Avenida Afonso Pena, with exception made for the Market, which for decades functioned as the Feira de Amostras[52]. The plots reserved for the Congress and the Palace of Justice today host the main headquarters of the City Hall and the Post Office, maintaining, therefore, their public programs foreseen by the initial plan.

> Image 34: View of Belo Horizonte city centre seen from the Viaduto Santa Tereza which crosses the Arrudas Valley, at the borders between urban and suburban zones. Source: By author, 2019.

Another important diagonal that lost the importance intended for both its endpoints and centre is Avenida Amazonas, which crosses Avenida Afonso Pena. In Reis' plan, the avenue connected the Praça da Estação - the square in front of the rail station - to a very large block facing a square in front of the unbuilt hospital. In Belo Horizonte's plan more generally, avenues predominantly point to the blocks diagonally as to face a corner, rarely facing squares directly, and presumably a building façade. In the Avenida Amazonas, the Church and the Municipality were to be both placed at its midpoint, where the avenue meets Avenida Cristovão Colombo (today's Bias Fortes). The crossing is marked by a large round square, Praça Raul Soares, separating both buildings. However, neither was built as their space was given over to the Avenida Amazonas. The square lost its monumental importance since the remaining surrounding blocks were too small to host any public program. Later, large administrative buildings occupied the adjacent 120x120m blocks – a State school in 1926 (Ginásio Mineiro), the municipal market in 1930[53] (the Mercado Central, originally planned at the end of Avenida Afonso Pena) and much later the Edifício JK, a massive housing project of the 1950s. Despite its spacious gardens, the square lacks the monumental architecture to frame and enclose it, since small buildings act as barriers towards larger public programs standing behind them. Although it is a recognised centrality in the city, located at the crossing of important avenues, its primary function is relegated to that of a roundabout due to the intensity of traffic flow and is underused as a civic space.

> Image 35: View of Belo Horizonte ciity centre showing the co-existance of buildings from several times and several interpretations of the initial grid structure. Source: By author, 2019.

The Presidential palace[54], the *Palácio Presidencial*, was placed at the top of one of the small elevations inside the Urban Zone, with three diagonals





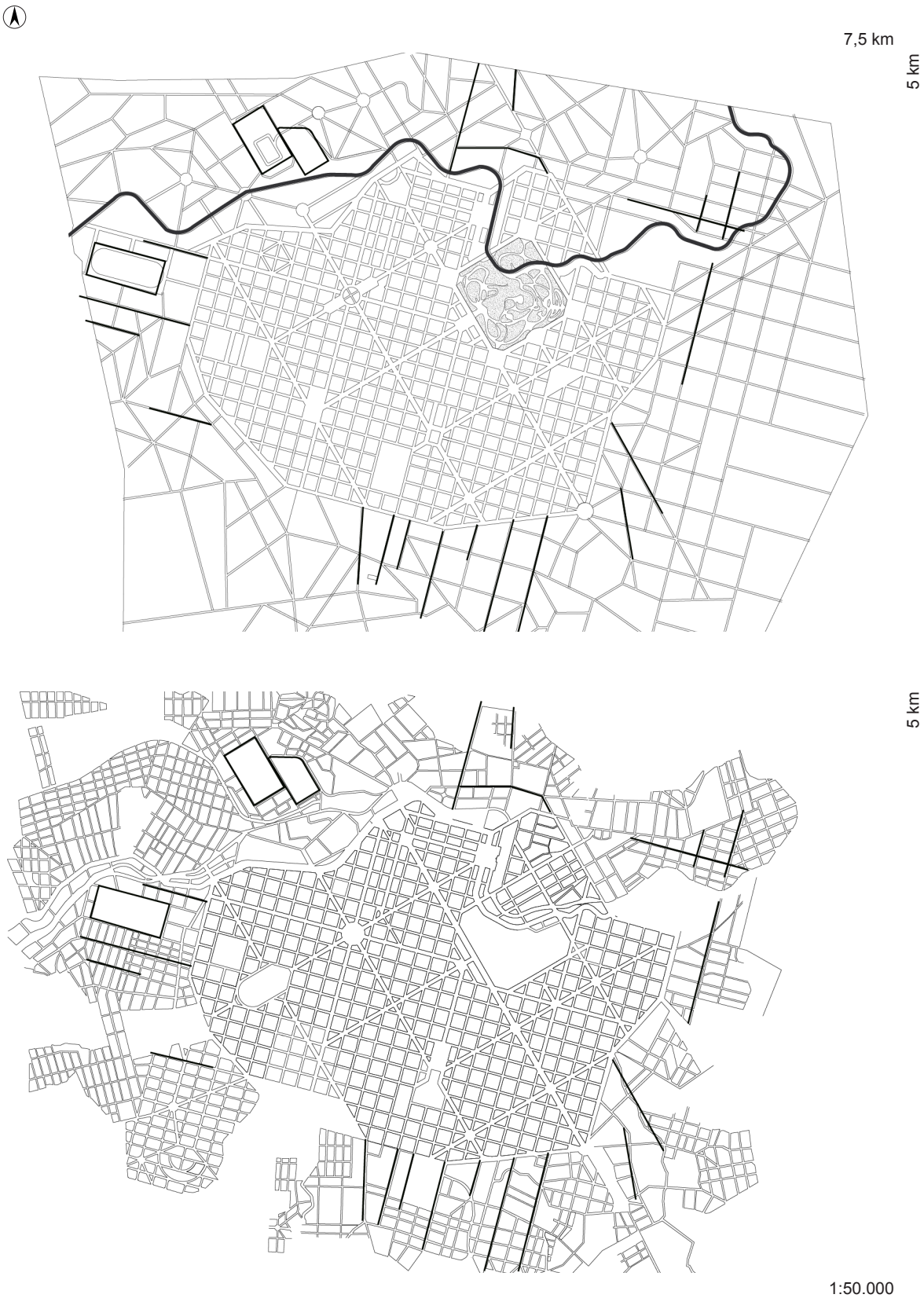


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Image 36:
View from the city centre towards the Serra do Curral. Source: By author, 2019.

converging at the corners of its rectangular plot. However, since these axes are climbing a small hill, the two-storied palace placed at the top of a small plateau is not visible from below. The monumentality of the square it faces, the Praça da Liberdade was enhanced due to changes in the plan, made after its inauguration. During the city construction, the government decided to build all administrative buildings at this square, instead of having them spread as Aarão Reis had desired. The decision was made by the then Secretary of Agriculture and Public Works[55] Francisco Sá, who refused Aarão Reis' proposal of having the Administrative Palace located in another square connected to the Presidential Palace through the Avenida Brasil. In Sá's opinion, concentrating all the Secretaries in one single building would be too costly and space-consuming. He ordered, instead, the construction of three buildings along the Praça da Liberdade, facing its longer edge, perpendicular to the Presidential Palace (Barreto, 1996 [1936]). Later, other public buildings were erected at the opposite end, enclosing three sides of the square. After construction, they became the first and only representations of the new city. The grid, on the other hand, remained incomplete - and therefore unperceivable – for decades. The positioning of public buildings at the top of the hill and facing a rectangular square resonate again with Ouro Preto and its main square, which hosted the Governor's Palace on one side and the Municipal Chambers and Prison at the other.

The changes during the construction years regarding the Praça da Liberdade and the government administration buildings resulted therefore in the formation of a civic centre in this square which was not foreseen by Reis. In his plan for the Urban Zone had distributed public the public monuments and functions all over the plan. Thus, in Reis' idea for the urban in Belo Horizonte, public powers were distributed as a constellation connected through the diagonals, rather than concentrated around one single square.

There were thus many changes to Belo Horizonte's plan after Reis' plan was published. Most public programs were built in different places than those foreseen, although their intended locations remained State land and were later occupied by other public functions or donated for institutional uses. One of the hypotheses for such changes derives from the fact that the plan was 'abandoned' by its conceiver in the first years of execution, meaning that it had no longer a 'father' fighting for it. However, this can be seen through another perspective. Although Aarão Reis is generally pictured as the main actor in the history of Belo Horizonte's plan and construction, the processes in their realisation suggest, how both conception and


7,5 km
5 km
5 km
1:50.000

elaboration were much less centralised as is usually portrayed. Rather than an imported model or a plan that failed, Belo Horizonte's project was the result of an assemblage of multidirectional forces within the body of the State, which, as Althusser has pointed out, has no unity (Althusser, 1971).

2.4.2. Suburban

Another layer neglected by Belo Horizonte's historiography is its suburban developments, as it has been pointed by Aguiar (2006). In the discussions around the original plan, the Suburban and Rural Zones are usually briefly mentioned as counterparts of the more important Urban Zone. When the analysis goes beyond planning towards describing and understanding Belo Horizonte's territorial development after the city's inauguration, its suburbs are usually described as unplanned and unorganised, in contrast with the ordered urban core, having grown chaotically and spontaneously (Paula & Monte-mór, n.d.). Entirely dedicated to the careful analysis of the planning and occupation of Belo Horizonte's suburbs, the doctoral dissertation of Tito Aguiar (2006) is an exception. His work represents an important step for deconstructing the consolidated representations of this city, particularly with regard to the first decades of suburban occupation (until the 1940s). The first representation Aguiar deconstructs is that of an unplanned suburb in contrast to the geometrically organised centre. The second one deals with the interpretation of Aarão Reis' plan as elitist and leading to severe socio-spatial segregation between well-serviced urban core for the affluent and precarious suburbs for the poor. These discussions will be picked up in this analysis and brought further, in order to uncover many of the practices and instruments that made out Belo Horizonte's suburbs, and how it was differentiated from its urban core. It will demonstrate how the Urban / Suburban divide goes beyond urban form, being not only a physical separation on the map but also lived in practical everyday allowances and aesthetical differentiation.

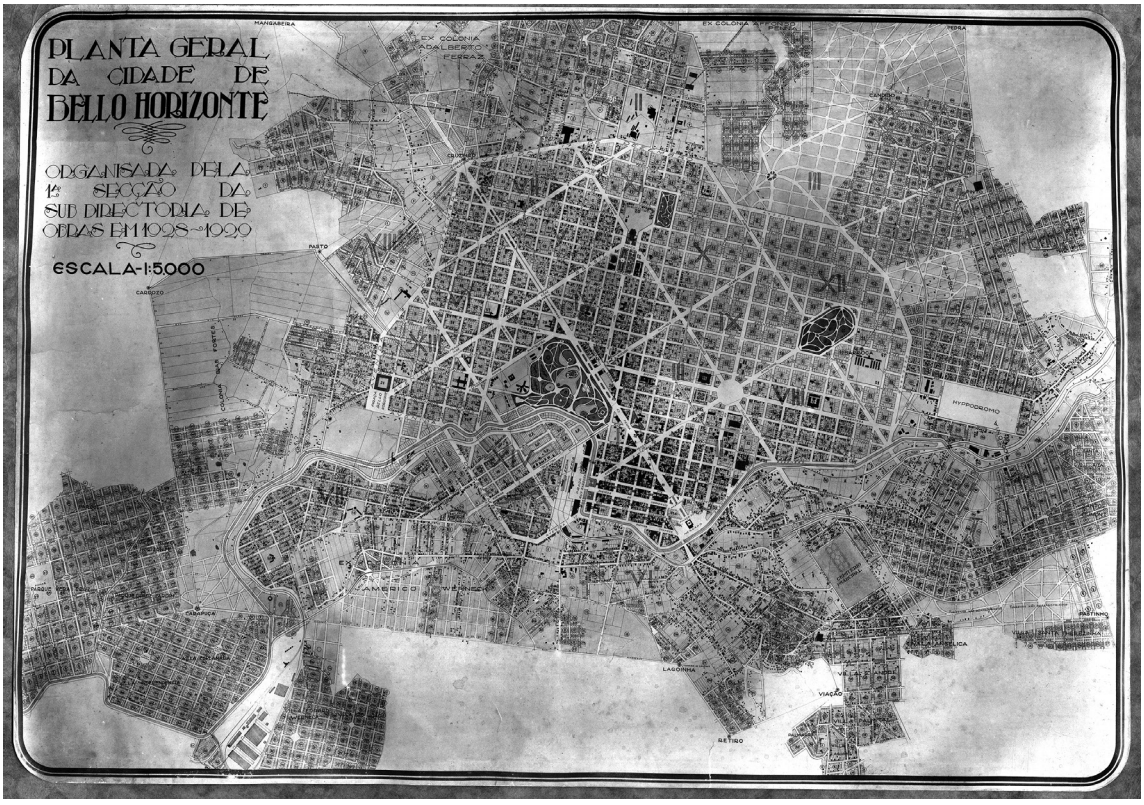
<
Image 37:
Project of 1895, with main structures that remained.

Source: By author, 2017. Data from historical maps available at APM and APCBH: *'Planta Geral da Cidade de Minas, 1895;*

In Belo Horizonte's historiography, the contraposition between Urban and Suburban Zones is related to the interpretation that Aarão Reis' plan failed in many ways. The city has been criticised by some authors (Le-Ven, 1977; Paula & Monte-mór, n.d.; Villaça, 2012) for presenting a reversed growth pattern, from the periphery to the centre. The city cadastre map of 1928-29 (Image 39), shows a partially filled Urban Zone contrasting with a larger Suburban Zone. It has consolidated the image of a disordered and expanding suburb, and a city that grew from the periphery to the centre. This image has been reinforced by the analysis of Lincoln Continentino, published in 1937 in the text '*Plano de urbanismo de Belo Horizonte*' (1937)

<
Image 38:
Street mesh in 1928-29 with the main structure that remained from the original 1895 plan.

Source: By author, 2017. Data from historical maps available at APM and APCBH: *'Planta Cadastral de Belo Horizonte, 1928-1929'.*


PLANTA GERAL
DA CIDADE DE
BELLO HORIZONTE
ORGANISADA PELA
1ª SECÇÃO DA
SUB DIRECTORIA DE
OBRAS EM 1895-1899
ESCALA-1:5000
MANGABEIRA
EX COLONIA
ADALBERTO
FERRAZ
PASTO
CADUCEU
HYPPODROMO
LAGOINHA
RETIRO
VIAÇÃO


Belo Horizonte
1954

(see next chapter), who pictured the suburbs as the place of disorder, a space occupied through extensive plot subdivisions made without any technical criteria or general planning principles (Aguiar, 2006, p. 194).

I understand that such criticisms are based on distorted perspectives that see the plan as something to be strictly followed instead of a project for the city, which is necessarily open and negotiable. The focus on the carefully detailed internal core has therefore overshadowed its complementary parts, the surrounding Suburban and Rural Zones. What such analysis also disregard is that, although Aarão Reis had declared in his descriptions that the Avenida Afonso Pena would become the central axis of growth (Barreto, 1996 [1936]), the intention was not to occupy and develop the Urban Zone before the other areas. Created simultaneously by the same plan, it was expected that Urban, Suburban and Rural Zones grew in parallel, each with its own particularities. Proof of this are the urban regulations launched for urban and suburban zones since 1898 and the later implementation of other programs for Belo Horizonte's outskirts, as the following analysis demonstrates.

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Image 39:
Planta Geral da Cidade de Bello Horizonte. Organizada pela 1a Secção da Subdirectoria de obras em 1928-29. Escala 1:5.000

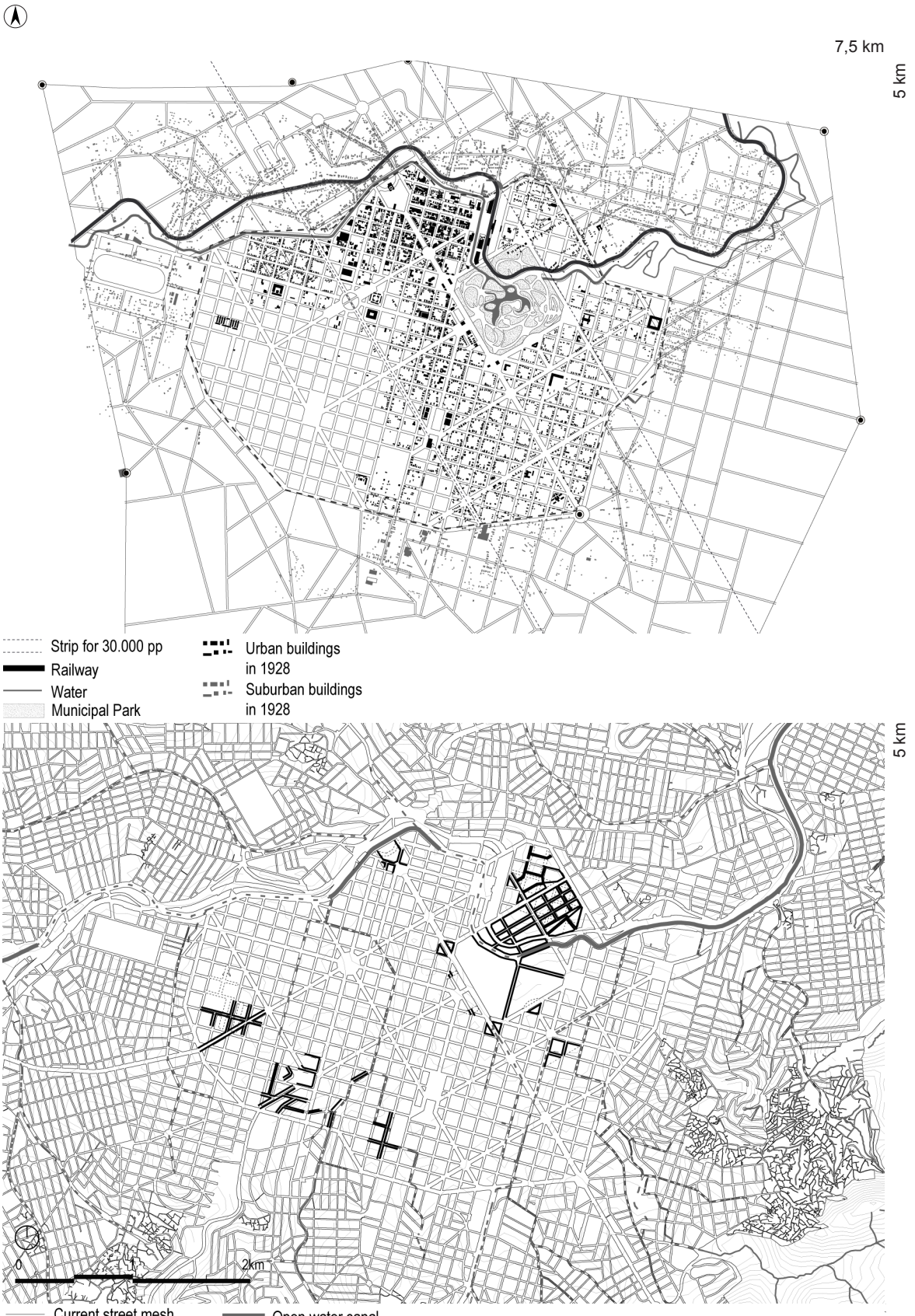
General plan of Belo Horizonte organized by the 1st Section of the subdirectory of works in 1928-29. Scale 1:5.000
Source: APM

While the Rural Zone was explicitly meant to be the bread basket for the city, the Urban and Suburban Zones were not programmatically distinct initially, despite their proposed morphological difference. The urban zone was clearly designed with two superimposed grids and limited by a precise border - the present-day Avenida do Contorno. Although its basic infrastructure was not complete until the 1940s (Kubitschek, 1976, p. 19), the plan was followed quite diligently in its construction, as shown in the previous sections. In contrast, the Suburban Zone was less dictated by geometry and regularity, and its construction was gradual and incremental, leading to more significant discrepancies between plan and implementation (See Images 37 and 38). Moreover, the implementation of agricultural colonies resulted in an intertwinement between Rural and Suburban Zones.

Urban-suburban distinctions

Besides the evident morphological contrast, the most consistent differentiation between the Urban and the Suburban zone in Belo Horizonte's historiography concerns class distribution. Some authors attribute the origins of Belo Horizonte's historical spatial segregation to its original plan, which contrasted the planned, ordered, equipped and eliticized urban zone to the unplanned, impoverished suburban (Gomes & Lima, 1999; Le-Ven, 1977; Magalhães & Andrade, 1989). After a thorough analysis, one of Tito Aguiar's partial conclusions note that "the

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Image 40:
Suburbs of Belo Horizonte in 1951.
Source: APCBH, coleção José Goes.


7,5 km
5 km
Strip for 30.000 pp
Railway
Water
Municipal Park
Urban buildings in 1928
Suburban buildings in 1928
5 km
0
1
2km
Current street mesh
Additions
Subtractions
Open water canal
Closed water canal
Open River
1:50.000

space management of the new city, along its first three decades of life, effectively established the social segregation, although this (…) was not predicted in the plan of CCNC"[56] (2006, p. 207)[57]. As pointed out by Berenice Guimarães (1991), the plan's main concern was with the State apparatus' bureaucratic staff and with those serving it. Reflecting the tendencies of the moment, the plan did not appoint a specific place for the housing of workers, which at the time was not a concern of the State. On the other hand, as a strategy to alleviate the resistance from Ouro Preto's bureaucrats, urban plots were given to transferred State functionaries as well as former property owners in Ouro Preto.

A quick comparison between the 1895 plan as well as its first cadastre map of 1928 (Images 20 and 21) leaves no doubts about the contrast and hierarchy between Urban and Suburban Zones, in both conceived and implemented forms. The former contained the most important governmental buildings, parks and squares and was carefully detailed and constructed largely through public intervention. The latter is composed instead of juxtaposed patches, and its designated equipment were typically peripheral, such as a hippodrome, a slaughterhouse, cemetery, sewage treatment plants. Describing Belo Horizonte's suburbs as unordered, unplanned or spontaneous, as done by the above-mentioned historiographers, presents however a too limited view. It is necessary therefore to unbound its logic and understand its processes of occupation, which are orchestrated by other rationalities rather than planning, including social, economic and legislative layers.

< Image 41: Built area in 1928-29

Source: By author, 2017. Data from historical maps available at APM: "*Planta Geral da Cidade de Belo Horizonte"*, 1928-29"

Distinction by legislation

In the attempt of organising the occupation and the construction of private buildings in the city, Belo Horizonte's early urban legislation was directed mainly towards two fronts. It firstly acted as to regulate the concession of plots for functionaries of the State and the property owners of Ouro Preto, as promised by Law n.3, in addition to the sale of plots. Secondly, the desire for materialising a state capital as quickly as possible required the establishment of some basic parameters for building, which went beyond the guidelines established by the plan.

< Image 42: Current street mesh, highlinghting, in the urban zone, the modifications from the original project.

Source: By author, 2017 with data from Prodabel

In these regulations, the first documented mention of the distinction between 'urban' and 'suburban' differentiates buildings rather than circumscribed zones. In the third part of Decree 803 (1895), which regulates the sale of plots, Article 8 states that: "The plots designated for urban and suburban edifications will be sold in public auction, (…) ("Decreto n. 803, de 11 de Janeiro de 1895," 1895)[58]". Further, in Article

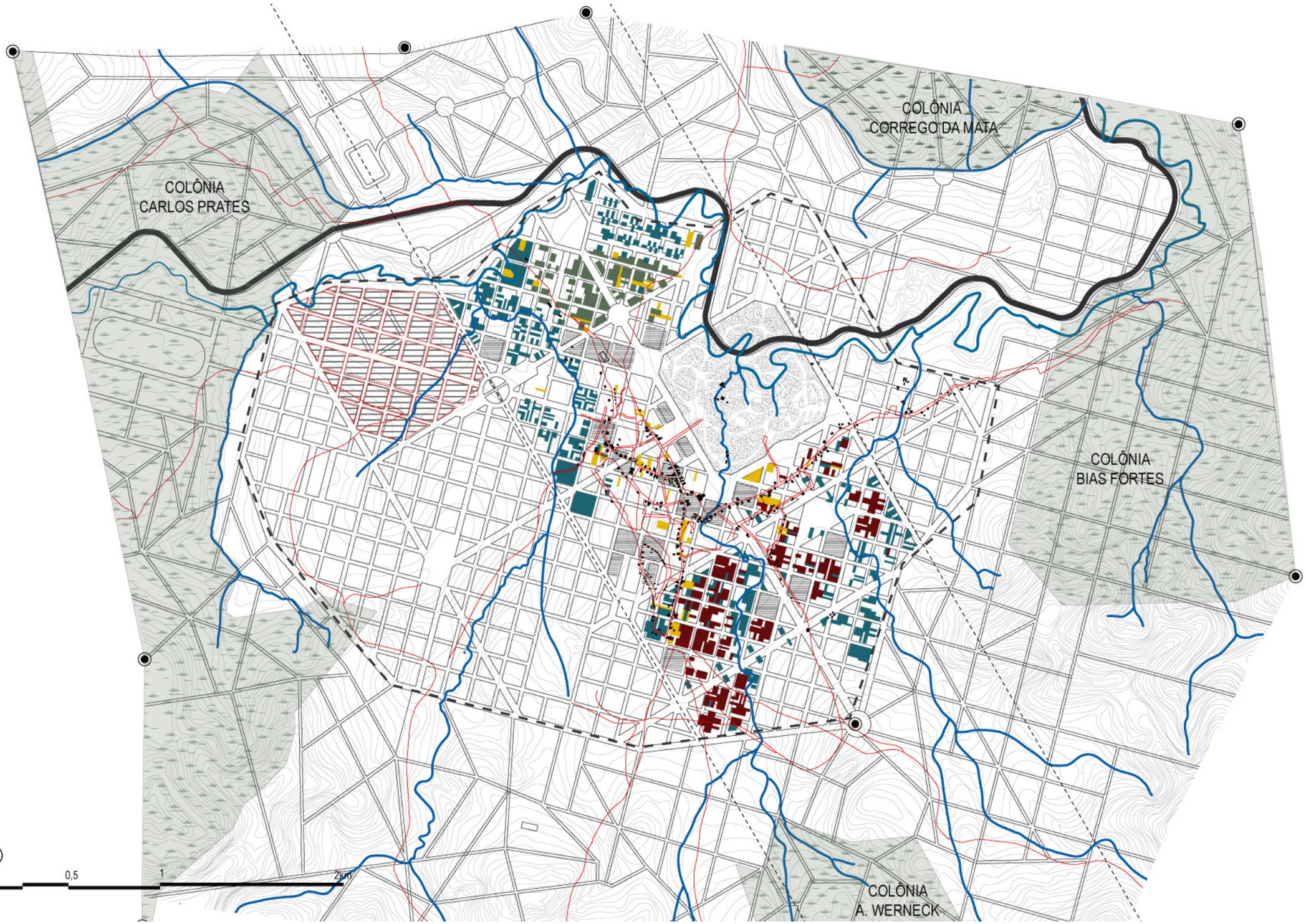
15, the adjectives ‘urban and ‘suburban' are used to characterise plots, determining that no one could purchase "more than twenty urban plots, than ten suburban, or twenty between one and other specimen.”[59] (ibid). In Article 27 the distinctions between urban and suburban building regulations become more defined. According to these regulations, the purchaser of urban plots was obliged to build within four years and to erect a fence or garden along with the adjacent sidewalk within two years. For the suburban buildings, the same deadlines applied for building, but one should fence or wall within one year.

The plan of Aarão Reis was approved four months after this decree, presenting the concentrically organised Urban, Suburban and Rural zones. The order of facts suggests that Reis' zoning was, in fact, a reflect of the Decree 803. In Guimarães’ understanding, the conception of a suburban zone occupied by farmsteads and orchards was inspired by a suburban pattern already under development in Rio de Janeiro (1991). Thus, the unequal distribution of people and resources between those zones cannot be attributed to the zoning alone. It is, instead, the consequence of a process in which segregation patterns were part of a consolidated habitus prior to Reis' involvement.

As briefly introduced before, the CCNC started the expropriation of villager’s homes in the Arraial in 1894, forcing their move to the Northern margin of the Arrudas Valley, where the city construction was not taking place. As determined by Decree 680 (1894), the CCNC would start by building an area sufficient for 30.000 people. In Aarão Reis plan, this first area to be constructed was the one contained between two parallel avenues within the Urban Zone, with Avenida Afonso Pena at its centre. As we can see in images 24 and 43, this area coincides with the pre-existing settlement, requiring its prompt demolition. Hence, one of the first consequences of the city’s construction was the immediate expulsion of the local population from their homes, which soon became inhabited by engineers homes and offices, as the former village was transformed into a construction site (Barreto, 1996 [1936]). The expelled population moved to a higher area on the other margin of the Arrudas River, occupying what would be the future Suburban Zone before it was even conceived of by Aarão Reis and the CCNC (Dias, 1897). One of the forms of financial compensation for the villagers was the exchange of their expropriated property for an urban or suburban plot. It remains unclear how houses or plots were valued, but events show that plots in the Urban Zone had a higher price than the Suburban one with a wider area (see further). Moreover, the properties were exchanged for plots only, so a certain amount of capital was required

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Image 43:
Plan of 1895 over the cadastre plan of the Arraial de Bello Horisonte of 1894 with plots reserved in 1895 (according to a map elaborated for the 2nd action of plots), the agricultural colonies (according to the cadastre map of 1898 and the area destined for the workers zone, according to the Decree 1516 of 1902.

Source: By author, 2018. Data from historical maps available at APM and APCBH: *‘Planta Geral da Cidade de Minas, 1895’, ‘Planta Cadastral do Arraial de Bello Horisonte, 1894’, ‘Planta da parte urbana da Cidade de Minas designada para 30.000 habitantes. 2a concorrência da venda de lotes’ , Planda dos terrenos demarcados para a fundação da Cidade de Minas”*, 1898;


COLÔNIA
CARLOS PRATES
COLÔNIA
CORREGO DA MATA
COLÔNIA
BIAS FORTES
COLÔNIA
A. WERNECK
0
0,5
1
2km
Strip for 30.000 pp
Urban / Suburban limits
Railway
Water
Streets Arraial
Buildings arraial
Agriculture colonies in 1898
Vila Operária 1902-1919
RESERVED PLOTS
State Funcionaries
Ouro Preto Owners
B.Horisonte Owners
State
Sold by 1895

1:25.000

in order to construct a new house. According to Berenice Guimarães (1991), most owners opted for cash compensation instead of plots. It is also likely that many villagers occupied others areas outside the city, using the financial compensation to build new homes or to purchase suburban plots. These were cheaper and with larger areas, and more compatible with their previous village lifestyle, as larger plots and urban regulations allowed growing crops and animals.

As argued by many authors (Aguiar, 2006; Guimarães, 1991; Le-Ven, 1977; Penna, 1997), one of the main factors for the exclusion of the more impoverished population from the Urban Zone, was the elevated plot prices. This results from a 'free market' tendency to value plots by location and service provision. However, it is, first of all, the result of a State decision, as the State here acted directly in the land market as buyer, regulator and seller. The above-mentioned decrees had determined that the prices of the plots would be decided by the State, according to their location and the proximity of public equipment. The State was therefore predetermining, and perhaps artificially enhancing, a market tendency. Naturally, plots in the Urban Zone were more expensive, as the area received substantial efforts and investments, containing the reserved plots for public buildings, already under construction by this time. Moreover, in the first auctions promoted for the selling of plots, the prices were suggested by potential buyers, in the form of bids. Thus, prices increased as interest increased.

Later, other urban regulations reinforced the distinctions between Urban and Suburban zones and buildings. The first *Código de Posturas*[60] for the city, launched through Decree 1211 on 31st October 1898, revises and reaffirms some of the premises from previous legislation. According to the 5th Article, plot prices would no longer fluctuate according to location or to auction bids, but would be fixed to $ 500.000 (five hundred thousand *réis*) for urban plots, all with approximately the same area, and $30 (thirty *réis*) per square meter for the suburban, with different areas. An exception was made to levelled plots around the Central Station and the Praça da Estação where the necessary landfill was complete, and where each square meter would cost between $2000 and $3000. Except for the triangular-shaped plots, located at the intersection of the diagonals, the standard urban plot size was 600 m^2, resulting in a price of $833 (eighty-thirty-three *réis*) per square meter. This was less than half the price of the valued Central Station area, but almost thirty times the price of a suburban plot[61]. The difference in price between urban and suburban land was not only about location but a reflection of investments in landfilling, sewage provision, paving and tree planting. Since no investments focused on the suburbs at

least for two decades, plots there were cheaper. After these new regulations, the timeframe for building was compressed significantly: buyers had six months to start constructions and twelve months to complete it, a period extendable for no more than six months, upon the discretion of the mayor.

Other distinctions between the zones were in relation to uses and programmes. Also according to the Decree 1211 of 1898, sties and stables were not allowed in the urban and allowed in the suburban areas. In the former, only stables for horses with saddles or used for traction were allowed. Therefore, animals were tolerated in this area for the movement of people and things, but not as livestock. An important distinction established for the Rural zone was presented in the decree's Article 19. According to its text, the conservation and opening of paths in the agricultural zone were a responsibility of its inhabitants - although dictated by the state - who had to donate two working days per year (alternatives were paying a fee or delegating a substitute).

A few welfare measures promised to give some assistance for the poorer, to help them fit into the new system. Former owners of cafuas (shacks) and labour workers were exempted from paying property registration taxes when buying new plots[62]. In addition, suburban owners were exempted from some building minimum standard requirements when their financial conditions did not allow for them, at the discretion of the mayor. The suburban occupation, therefore, appeared more flexible, in opposition to the strictly regulated Urban Zone.

Moreover, the decree forbade the repairing of former Arraial houses (mostly owned by the municipality and conceded or rented out to engineers and other newcomers) without the Mayor's authorisation. Furthermore, it declares that all old houses situated in the Urban Zone would be demolished in due time to the extent that it is convenient or necessary, which confirms the municipality's intention of completely erasing the village (ibid).

Between 1900 and 1902, nineteen governmental decrees regulated municipal services and established norms to guide uses and occupations in the city in the effort of shaping the everyday practices of Belo Horizonte's new inhabitants (Aguiar, 2006, p. 189). Some of their targets were: the codes of conduct, urban and suburban concessions, funerary and cemetery services, sanitary installations, hygiene of public and private spaces, the theatre, market and slaughterhouse operations, the circulation of vehicles, electricity and telephone services, the commerce of poultry, the presence and conduct of homeless people on the streets, the registration of dogs and goats, construction and demolition, commercial operations, the

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Image 44:
Agriculture colonies in 1898,workers quarters installed in 1902, built area in 1929 and canalized rivers in 1942.

Source: By author., 2018
Data from historical maps available at APM and APCBH:
"Estado de Minas Gerais: Planda dos terrenos demarcados para a fundação da Cidade de Minas", 1898; "*Planta Geral da Cidade de Belo Horizonte"*, 1928-29; *"Planta Cadastral de Belo Horizonte. Administração Juscelino Kubitschek"*, 1942. Location of Vila Operária (workers quarter) according to Decree 1516 of 1902.

7,5 km

5 km

Strip for 30.000 pp
Urban / Suburban limits
Railway
Water

Canalized rivers
Municipal Park
Agriculture colonies in 1898
Vila Operária 1902-1919

Urban buildings in 1928
Suburban buildings in 1928

use of steam engines, hunting and fishing in the municipality, the use of explosives and inflammable materials, and railway lines. (Lopes, 1903, apud, Aguiar, ibid).

In 1901 a more comprehensive code of conduct was launched, reinforcing previous laws and providing extensive details on conducts, uses, and also building regulations, which include details on procedures, technical solutions and qualities of materials. Article 23 reinforced something that the previous regulations had left implicit: buildings would be classified between urban and suburban. Indeed, Decree 1453 of 27 March 1901 establish some meaningful differences between urban and suburban buildings, which corresponded to the Zone in which they were to be built. I will here highlight some of them, with particular attention to those which have, intentionally or unintentionally, resulted in social-spatial segregation.

One of the most significant additions to the conduct norms was the prohibition, within the Urban Zone, of *cortiços*[63], inns, or any form of collective housing, except for hotels. This form of dwelling was most of the times the only affordable alternative for the poor and newcomers. Before the capital's inauguration, groups of small houses occupying the same plot and rented at low prices were already being built at the suburbs (Barreto, 1996 [1936], p.638). This form of occupation, cheap rental houses, was therefore relegated to the Suburban Zone.

There was, in general, special attention to building aesthetics, especially in the Urban Zone. Besides contributing to the 'embellishment' of the city, the buildings needed to properly fill up the urban space harmoniously. For the Urban Zone, façades were required to be 6 meters high and 7 meters long as a minimum, occupying, at least, 2/3 of the plot (E. de Minas Gerais, 1901). Their front should be gardened and enclosed with iron railing, while in the Suburban Zone they could even be enclosed with plants, wood or wire. Article 31 declares that the architectural style could not be determined but, aiming for the embellishment of the city, it was subjected to the analysis of the municipality. However, another article required roofs to be covered by a small wall[64] of artistic pediments, indicating a strong inclination towards the Eclectic style. This was in total denial of the colonial style, predominant in Ouro Preto, and was largely adopted for functionaries housing. Moreover, façades should be coloured, and white walls were forbidden, which is also in antithesis to the aesthetics Ouro Preto.

However, according to Barreto (1996 [1936], p. 638), the municipal

officer who was in charge of analysing projects for approval, Alfredo Camarate, was very tolerant in his assessment, seen the urgency and very tight deadlines set for the city's construction[65].

Other special requirements exclusive to the Urban Zone regarded the quality of materials applied in private construction, which guaranteed the embellishment of the inner city while avoiding its occupation by a poorer population. The use of precarious materials and modes of construction such as adobe and wood for walls, zinc and grass for roofs were allowed only in the suburban zone and not in the urban zone. The article 74 sums up the intentions: "It is not allowed, especially in the urban constructions, the use of bad quality materials." (E. de Minas Gerais, 1901). If those were used, owners were subjected to the payment of a fine and, in extreme cases, demolition. Also abandoned ruins were subjected to the same penalties. It is transparent therefore the importance given to the image of the city in formation in its very first years since its political project had promised to construct an organised city which would be the symbol of the State's progress and civilisation.

Article 72 of the same code brings an important reflection regarding the occupation of the diverse regions in the city. According to the text, no building could be erected in a plot with recent landfill, without at least five years of consolidation, except when the foundations sit on natural soil (Minas Gerais, 1901). Cuts and landfills began around 1895 when the plan was approved and continued for many years in the areas around the Central Station (the South-West portion of the Urban Zone was only urbanised in the late 1920s). This means that, for an extended period, a large area was unsuitable for construction, except if expensive foundation technology was used. Besides, no building should occupy the proximities of any watercourse, keeping a distance of at least 70 meters, unless its margins were covered with stone-walls (ibid). This means that, if respected, the (official) occupation of large portions of the Urban and Suburban Zones was delayed at least until the proper canalisation of rivers. It is well-known, however, that many people were occupying the margins of water creeks such as the Córrego do Leitão, since the beginning of the construction of the city (Guimarães, 1991, p. 70).

The differences between urban and suburban in Belo Horizonte, were not, therefore, a simple line drawn in its inaugural plan. In the first place, the suburbs had a different spatial organization since its shape was not dictated by the regularity of the grid implemented at the urban zone. A comparison between the 1895 plan and the built form already in 1928 shows also that its resultant urban form was not also dictated by planning

but only roughly guided by it. According to Reis' descriptions of the plan, the suburbs should allow narrower streets following topography and larger plots, where a village lifestyle could exist. Although an in-depth analysis of the plot structure could not be done, the analysis of the 1928-1929 cadastre plan as well as the 1942's reveals, however, no density distinction between urban and suburban zones in the urbanized and occupied areas. However, it is clear that the suburbs received very different investments, especially regarding the absence public spaces and administrative buildings. It was, instead, the place for large or undesired programmes such as the cemetery, slaughter house and hippodrome. By restricting uses, conducts, typologies, the suburbs became also the place to host whatever was seen as unsuited for the 'official' city, to be represented by the image of the urban zone, with its public buildings, aligned houses. It was the place for the cortiços, the collective workers housing and the animals.

Exceptions

As we have seen, many building restrictions were set for the Urban Zone, which was expected to become a beautiful, ordered and hygienic city, fulfilling the high expectations of an emerging state capital, and not the one of a temporary settlement. However, a large number of buildings did not fit the high standards set. Although it was designed to be the state capital, much more than being only an administrative centre was expected from Belo Horizonte. Replacing Ouro Preto meant fulfilling the roles it failed to play as the state capital such as the logistic and political centre of the state, equipped with an industrial pole that would boost economic development. This implies that its population would not only be composed of high officials, but also of low skilled workers, firstly for constructing the city, and later for industrial and domestic services, commerce, etc. It is important to remember that Brazil had just abolished slavery two decades before, resulting in a mass of poor, unemployed or precarious workers. An example of that is the fact that, in 1900, a large part of the commerce was done by street vendors, registered in the city Almanak of that year. (J. R. de Lima, 1900), who delivered meat, bread, vegetables and groceries from house to house.

This population was not totally ignored by the government or in Reis' plan but was largely neglected. Article 6 of Law n. 3 (1893) mentioned briefly that the State should "promote the construction of houses in hygienic conditions and cheap rent for workers." (Comissão Constructora da Nova Capital, 1895). However, much more care and resources were directed to higher rank public functionaries to whom plots were donated and houses were constructed, to be paid in monthly deposits. Yet, even amongst those



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Image 45:
View of Belo Horizonte in 1905.
Source: APCBH, Coleção José Goes.



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Image 46:
The only building of the time of the Arraial which survived demolition. It was a farm house located outside the urban zone. It has been conserved and hosts today the Museu Histórico Abílio Barreto.
Source: APM



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Image 47:
Ground manipulations in the 1930s for the construction of the Parque Santo Antônio (see next chapter) where the original plan of 1895 foresaw the location of the zoo.
Source: APM



>
Image 48:
Settlment at the Alto da Floresta, at the northern margins of the Arrudas River around 1897. Known as the first favela of Belo Horizonte.
Source: APM



>
Image 49:
Canalization of Córrego do Leitão at Rua Levindo Lopes, in the Urban Zone (1926-1930).
Source: APM

privileged functionaries, a specific architectural type (classified as A, B, C, D or E) was assigned to each level of functionaries, following hierarchy. Thus, larger areas with more façade ornaments would be offered to the higher ranks, while smaller, simpler houses were for lower rank public servants (Lemos, 1998). In 1896, the CCNC built temporary wooden shacks for housing around 200 people, an insufficient number to host a large number of immigrants and workers with their families (Guimarães, 1991, p. 69). Between 1896 and 1897, 1.111 licenses were given for the construction of temporary shacks (ibid).

Actions concerning housing for the poor and the working class responded therefore to real-time circumstances rather than tenets accompanying the plan. Aarão Reis' main concern while drawing the new city was the geometry of the streets, the distribution of squares and buildings, the rational organisation of plots; in sum, urban form, as it is transparent in his above-cited description of it (Barreto, 1996 [1936]). In the role of the engineer in charge of construction - however shortly - his main concern was to get the task done, and as rapidly as possible (Dias, 1897). Class distribution was probably not one of his direct concerns, as it was also not expected from him as the engineer in charge. A testimony of Padre Francisco Martins Dias', republished in the most consulted historical book of Belo Horizonte, '*Belo Horizonte: História Média',* of Abílio Barreto (1996 [1936]) made Aarão Reis an unpopular figure portraying him as a cold rationalist man. Martins had heard Reis saying that he no longer wanted to see Arraial residents inside the areas that would become the Urban and Suburban Zones and they should start leaving (ibid, p. 71). Besides the designer of Belo Horizonte's plan, the engineer in charge of constructions, one of his responsibilities was also to take care of expropriations. This means that he became the personification of the State actions in Belo Horizonte and explains why so much of the responsibility of this plan is directed at his person. He did, however, conceive the city with three simultaneous zones with three different characters and, although not publicly stated, able to house a broad range of different people according to the categories of urban, suburban and rural. Although a wealthier population may desire to live in the suburbs, following a farm-based lifestyle on larger plots, the contrary could not happen as a more impoverished population could not afford the urban plots. The norms and prices established for the Urban Zone, by a succession of laws, decrees, auctions and later, through market action, became prohibitive for the more impoverished population.

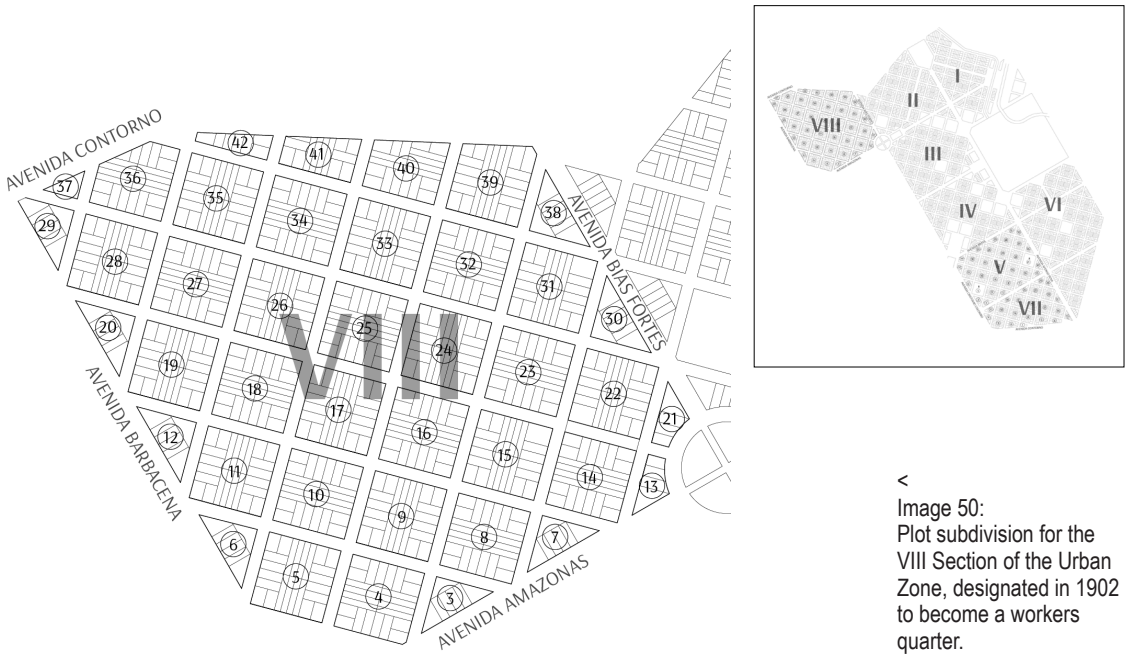
During the first construction years, improvised shacks or sheds were tolerated within the Urban and Suburban Zones (Guimarães, 1991).

Despite the license system put in place, many other settlements spread informally. As the landfill works advanced, these settlers were evicted and camped somewhere else. During the first decades, there was a constant cycle of eviction and resettlement throughout the city. The first favela, Alto da Estação, was already formed in the first years of the capital occupying a steep hill right behind the central station. Since its urbanization was delayed, this small portion of land caught between the railway and the Avenida do Contorno was the only part of the Urban Zone not constructed according to the plan.

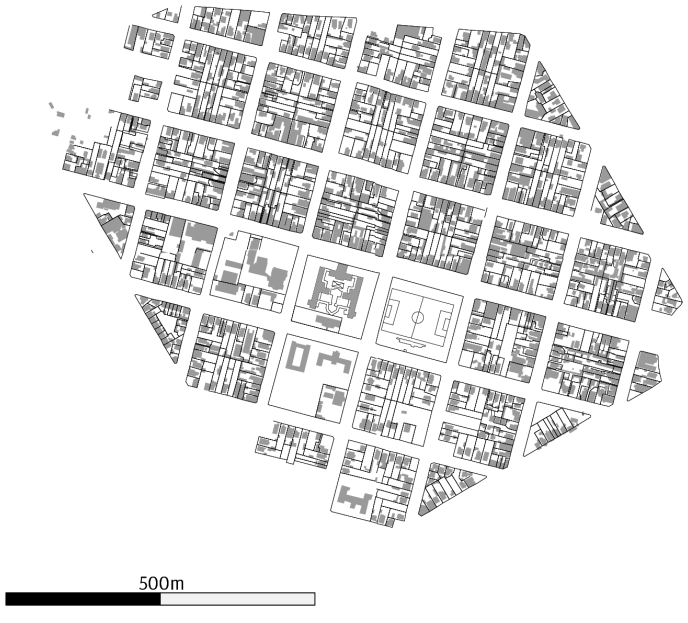
As informal settlements spread, the municipality was forced to take action in order to house this population. The lower land prices and the more flexible building parameters and demands set for the Suburban Zone were still unreachable for a large portion of the population (ibid). Those who could not afford these continued to occupy areas not were not yet urbanised such as the margin of creeks and steep hills - a pattern that persists until nowadays. Although the law of 1893 had predicted the construction of houses for workers, no effective action was taken until 1902.

The inertia of the government in acting for providing workers' housing meant that private initiative filled the gap. Already in September 1897, before the city's actual inauguration, the entrepreneur Alberto Bressane Lopes initiated the construction of a group of 100 houses of various types, the majority of which targeted workers and poorer people. The larger 15 of those were centrally located in the Urban Zone while a small 'village', known as Villa Bressane, was built at Rua Grão Mogol, in the 1st Section of the Suburban Zone (Aguiar, 2006, p. 163). Another entrepreneur, Leopoldo César Gomes Teixeira, built at the same time two groups of low-cost houses, reusing the wood from the demolished constructions of the Arraial. Also, Hermínio Alves built another group of small houses next to his brick factory in the suburbs, behind the Central Station. All these enterprises were done after the negotiation with the State Government (ibid). According to Abílio Barreto (1996 [1936], p. 638), when the capital was inaugurated, it hosted around 200 houses for functionaries, 300 private residences and at least 5 or 6 'villages' of small rental homes.

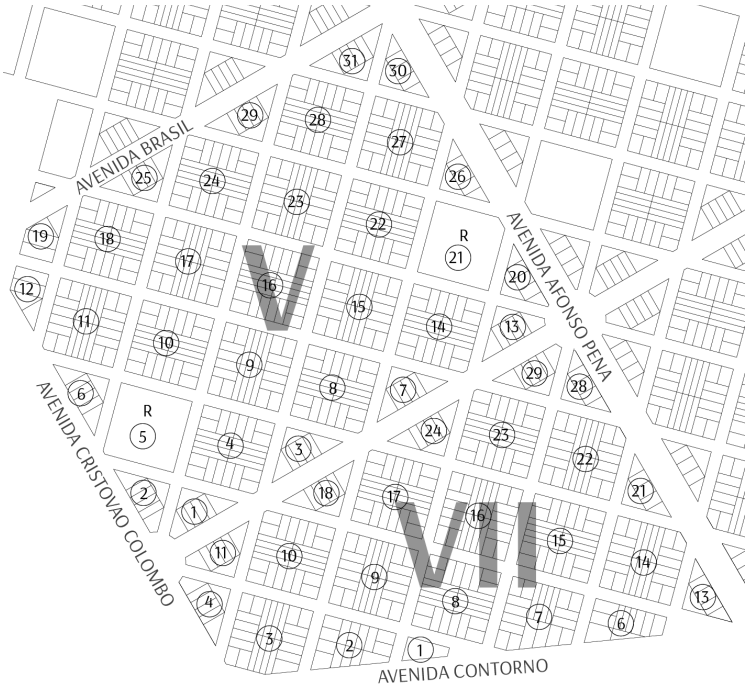
Already in 1902 suburban features transformed the Urban Zone. The distinctions between the two areas, therefore, became harder to discern. Through Decree 1516, of that year, the government established special conditions for the concession of land for workers and industry. According to the 23rd article of this decree, a workers' zone was to be established in the 8th sector of the Urban Zone (today Barro Preto neighbourhood), just beside the strip for 30.000 inhabitants to be delivered by the CCNC (E.

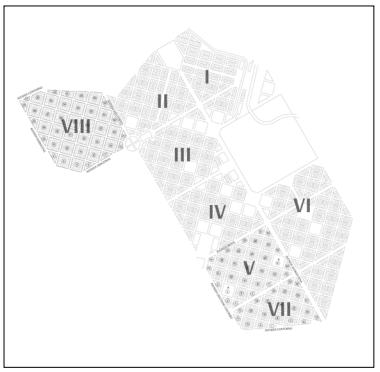


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Image 50:
Plot subdivision for the VIII Section of the Urban Zone, designated in 1902 to become a workers quarter.
Source: By author, 2018. Data from www.planta-sonline.phb.gov.br



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Image 51:
Plot subdivision and built area in 1942 at the VIII Section of the Urban Zone, designated in 1902 to become a workers quarter.
Source: By author, 2018. Data from historical maps available at APCBH: *"Planta Cadastral de Belo Horizonte. Administração Juscelino Kubitschek"*, 1942.





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Image 52:
Plot subdivision for the V and VII Sections of the Urban Zone, known as the Funcionaries neighborhood - *Bairro dos Funcionários*.

Source: By author, 2018. Data from www.plantasonline.phb.gov.br



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Image 53:
Plot subdivision and built area in 1942 at V and VII Sections of the Urban Zone, known as the Funcionaries neighborhood - *Bairro dos Funcionários*.

Source: By author, 2018. Data from historical maps available at APCBH: *"Planta Cadastral de Belo Horizonte. Administração Juscelino Kubitschek"*, 1942.

de Minas Gerais, 1902). To make it feasible, an exception to the rules was allowed to reshape urban rules as reality bit through – it would neither be the first, nor the last. Sector 8 was therefore transformed into the Suburban Zone, which implied the softening of norms concerning the concession of land, as well as of the parameters for its occupation. Later, in 1909 the state government creates through the Decree 2846 a workers' zone also in the 8th Sector, which occupation was to be strictly by *operários* (industry workers). It modified the previous regulation by reducing the area in which plots would be conceded for free, from 43 blocks to only 17. However, a certain degree of 'civility' was required since the right to land concession could only be granted to those who could prove: "a) to be low skilled workers, therefore, to subside from manual labour, (…); b) to have resided in the capital for, at least, two years before making a requirement for plot concession, having performed his craft during this time; c) to have good manners and be dedicated to work". The law adds the paragraph: "The conditions of letters a and b will be proven by the witness of three respected people according to the mayor; the letter c, by means of a certificate from the police authority" (Minas Gerais, 1909 apud Faria & PLAMBEL, 1979, p. 66).

However, investments in infrastructure did not follow this plan, so water, sewage and energy connections where not installed in the first years. Very quickly, this neighbourhood came to feature the worse sanitary conditions of the capital (Aguiar, 2006, p.186).

In 1919, Law 178 allowed the municipality to establish *Vilas Operárias*, which consisted of land subdivisions following smaller parcellation and therefore cheaper plots that targeted the working class. It is known by the mayors' reports of the following years (see next chapter) however, that illegal plot subdivisions were taking place in the Suburban Zone, which has resulted in an urban pattern different from the planned (Image 12).

The first workers' suburban settlement to be approved and built by the government was Vila Concórdia, in 1928. This inaugurated a movement of patched urbanization in the suburbs of Belo Horizonte, mostly towards the North and East of the urban core. Despite the efforts in providing housing and allotments for all classes, the problem of land prices remained. In the State President's report of 1925 he declares that: "The action of the municipality (…) has been beneficial to the development of the city, facilitating the acquisition of plots, for the construction of buildings for the diverse social classes, especially labour workers and functionaries, consonant with the special consideration due to the creation of industries. Otherwise, the progress of the Capital would be hindered, for long years,

because, with the growing valuation of private property, its acquisition has been almost prohibitive, or the construction of buildings, especially for housing, for the less privileged classes[66]" (Mensagem apresentada por Fernando de Mello Vianna, Presidente do Estado de Minas Geraes, 1926, pp. 372–373)

2.4.3. Rural

Another element that played a fundamental role in the occupation of the suburbs and the housing of the non-official population was the establishment of agricultural colonies around the Suburban and Rural zones. Promoted by the State, these were not part of the 1895 plan of Aarão Reis but were implemented simultaneously to the construction of the city, adding a new layer to the concentric model envisioned by the planner. With their implementation agricultural patches were superimposed to the mesh drawn by Aarão Reis, and a new land subdivision pattern was applied, following rural logics, according to which property lines were organised along watercourses, where the soil was more fertile, forming long strips perpendicular to each creek.

The project for the colonies went beyond the city's perimeter and initial project scope, combining efforts of fostering European immigration to develop the agricultural sector. Since the beginning of the Republic (1891), the Federal State had been installing many colonies in the State of Minas Gerais and encouraging immigration (Aguiar, 2006). In the State Presidents' reports of the period, the expenses classified under the rubrics of agriculture and immigration figured amongst other ordinary expenditures such as education, railways, public buildings, etc.

Only in 1897 17.588 immigrants were introduced in the State of Minas Gerais, making a total of 61.259 at the end of Bias Fortes state administration in 1898. (Minas, 1898). By 1899 there were already five agricultural colonies in the State, with 2.574 people in total. In that same year, 2.228 immigrants were allocated land in the State, many in such colonies. The main idea was to fix the farmers to the land, making them small landowner, as a mean to occupy the territory and develop the State's agricultural production ("Mensagem dirigida pelo Presidente do Estado Dr. Francisco Silviano de Almeida Brandão ao Congresso Mineiro em sua primeira sessão ordinaria da terceira legislatura no anno de 1889.," 1889).

The strategy is not only conducible to immigration and agriculture but also consists of strategically occupying the vast territory of Minas Gerais[67], a strategy also applied in the capital Belo Horizonte. In 1898 the then Minas

Gerais State President Bias Fortes stated that: "Being of vital importance to the Capital the peopling of its vast suburbs by small farmers and the fixing the factory workers here residing; the Government already took action in this sense, measuring and demarcating plots to the distributed and colonised." (Minas, 1898, p.31)

The colonies were: Carlos Prates, the largest to the West, Córrego da Mata (later renamed Américo Werneck) to the North, Bias Fortes, to the East and Adalberto Ferraz, in the South. Their implementation (1898-1899), planned and undertaken by the State, goes in the opposite direction of the plans of Reis, who had designed this area as a Suburban Zone, separated from its surroundings by a Rural Zone. However, these colonies were implemented in former farming land, expropriated by the State for the construction of the capital city. Their designation as agricultural areas has, in fact, reinforced the area's previous character before Aarão Reis had seen then as suburbs.

The form of such colonies does not follow Reis' design, but two principles: the occupation of already expropriated areas, by then belonging to the State, and the landscape's morphology. Land subdivision was organized as long strips running parallel to the river, providing water supply for agricultural purposes. Analyzing the cadastral map of 1928-29 (Image 14), it is possible to see that the urban mesh actually built followed the agricultural and hydrological structures and not Reis' indications. This is very clear in the Colonia Carlos Prates, to the West. In the Northern areas, urban development results from the subdivision of this typical rural layout.

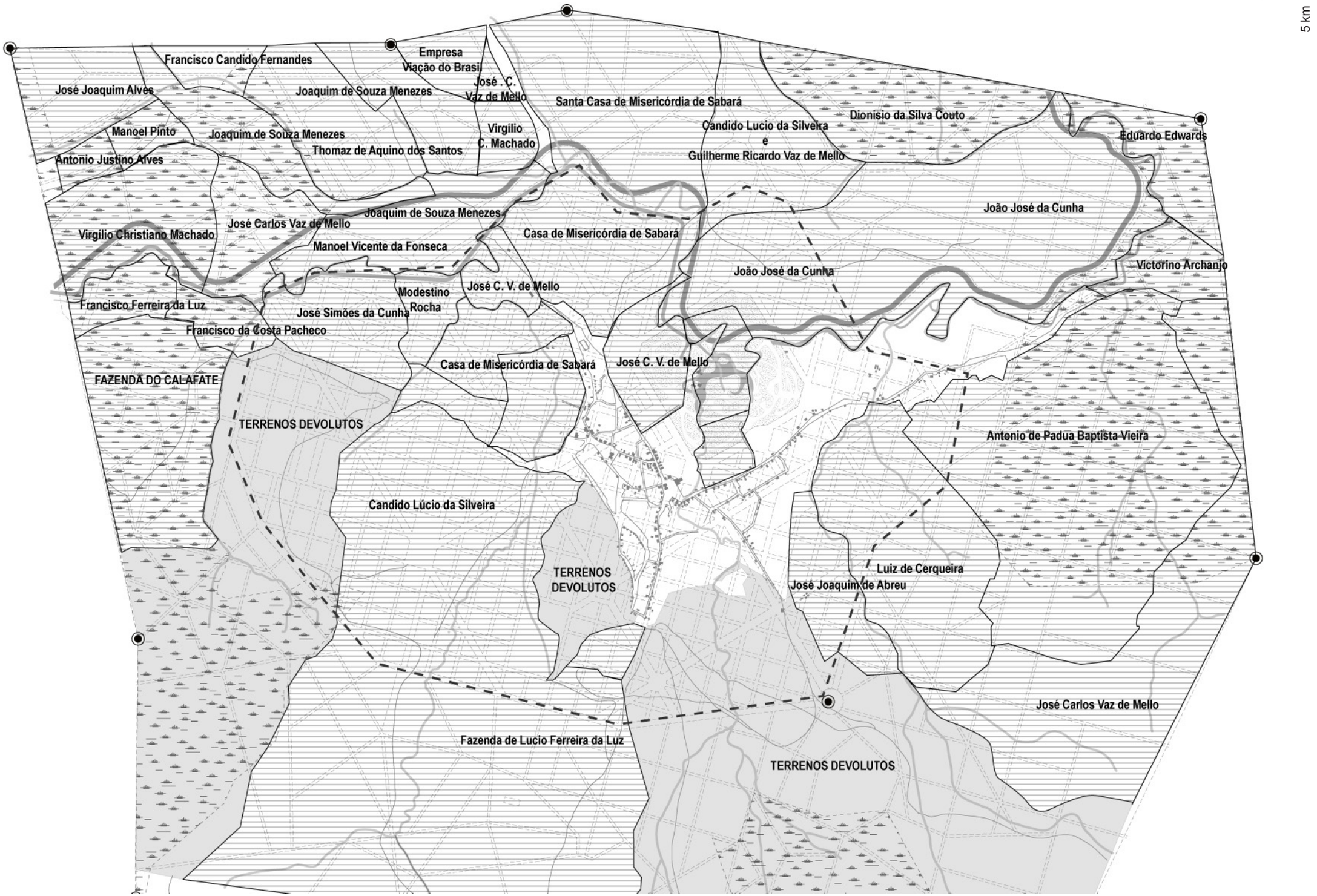
In 1912[68] the colonies, which had recently been emancipated by the State[69], were incorporated in the Suburban Zone, no longer belonging to the State's agricultural project but now having to comply to Belo Horizonte's municipal urban regulations. The municipality would, from this point onwards, be responsible for opening streets and installing squares in this areas. The urban mesh of these areas corresponds today, therefore, to the formal logics required by small farming and not the ones pre-designed by Aarão Reis. Slowly the large land strips were subdivided with the addition of the necessary streets and open spaces. As the large agricultural colonies occupied most of the land of the Suburban Zone, its resulting urban form is closer to the usual pattern of spontaneous suburbanization, namely that of smallholders' farms.

The urbanization of farming land together with the illegal subdivision of municipal allotments in the suburbs resulted in what many have described as a chaotic suburban growth, in contrast to the emptiness of the organised

> Image 54: Land properties of the Arraial de Bello Horisonte in 1894 over the 1895 plan. Source: By author, 2018.. Data from historical maps available at APM: *"Planta Topographica e Cadastral da área destinada à Cidade de Minas"*. Comissão Constructora da Nova Capital, 1895.

7,5 km

5 km



Plan of 1895
Urban / Suburban limits
Streets of Arraial
Waters

Agriculture colonies in 1898
Expropriated farms
State Land
(terrenos devolutos)

1:25.000

city centre. It is the opposite of what is found in older, unplanned cities, where the old chaotic centre is contrasted with organised suburban growth, where new neighborhoods in form of grid patches are inaugurated. It is the case for example of São Paulo, where new gridded and organised neighbourhoods were built by and directed to the emergent elite desiring to leave the congested city centre. It is through this comparison that Belo Horizonte only apparently to presents an 'inverted growth', in the opposite direction of a model of concentric growth. On the contrary, we see Belo Horizonte as a city that has appropriated, incremented and hybridised several superimposing logics of urbanization.

In sum, it is possible to understand that Belo Horizonte's 1895 plan has foreseen three distinct and physically separated urban environments by separating urban, suburban and rural zones. The first, was to contain the State administrative apparatus and the functionaries' residences, carefully designed and constructed as to be the best example of the capability of the State powers and engineer's technology of the time. As no city is made of its administrative body only, a suburban zone was to accommodate other functions, uses and peoples, the 'not-so-urban' lifestyles, with a less strict spatial organization, larger plots and orchards. Finally, a rural zone would serve as a bread basket for the city, while also maintaining the Arraial de Bello Horisonte's main character, the one of small scale family farming.

However, the analysis has shown that, with time, an assemblage of plans, regulations and actions has rearranged the constellations of urban, suburban and rural in terms of space and also in terms social of relations. While the rural has subverted the suburban and vice-versa, with the implementation of the agricultural colonies and later their urbanization, the suburban has also invaded the urban with the exceptions made for the workers settling and the tolerance for informal settlements. Belo Horizonte's first space has materialized therefore as a constellation of different initiatives of building and urbanization despite the plan's definition of three zones. This was due to constant shifts in managing, regulating and programming this territory on one hand, and to market logics and appropriation of empty land on the other.


0
1
2km

2.5. Findings

When a strict urban planning vision is applied to access critically the spatial history of Belo Horizonte's foundational plan, it usually sees only that the large majority of projected monuments were never built, that the clash between its urban grid and soil conditions have had undesired results, and its suburbs have materialised differently from the plan. This chapter has offered an alternative view, one that contrasts the project with its materialisation, intersecting the plan for the city with other forces and processes under the themes of manipulating nature, building infrastructure and emerging constellations.

Accessing the materialization of the city's first spaces from the perspective of space, landscape and action, has allowed to see how the plan of 1895 was just one of the elements which influenced the construction of the city. The analysis looked specifically at the actions, that is, the social processes that have transformed the landscape of Belo Horizonte. This approach has covered from the political discourses and debates around the construction of the city, passing through the translation of desires about the city into urban regulations, which eventually gets translated in urban materiality. By analysing this processes and procedures of materializing city, it has revealed thus how the city is socially produced through an aggregation of actions on space, and not solely as a result of one plan. In this process between discourses and desires to materialization, the chapter has critically accessed also the translations from ideologies to practices, and revealed that, when it comes distributing space and people, the practices are governed by habitus, reproducing long standing structuring principles of privilege and social segregation.

The application of the interpretative lenses selected allowed moving beyond its foundational plan, which is usually the only or main point of departure for its foundational history. Seeing through constellations has allowed seeing some of the rhizomatic texture of its construction, with the aggregation of a multitude of projects, actions and laws which had as a central point the tranformations of space and the construction of a new landscape.

Although the city was designed with its three concentric zones, only a small part would receive its essential urban infrastructure for inauguration, which was determinant not only for shaping its physical form, but also for setting the tune for its occupation patterns, directing the population here or there, according to, in the first place, the amount of infrastructure built. On the other hand, other infrastructural projects have played a

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Image 55:
Built area in 1942, zoning according the the plan of 1895 and agriculture colonies in 1898.

Source: by author, 2018. Data from historical maps available at APM and APCBH: "*Planta Geral da Cidade De Minas (...) 1895";*
"Planta Cadastral de Belo Horizonte. Administração Juscelino Kubitschek", 1942.

fundamental role in the suburban formation of Belo Horizonte, such as the installation of agricultural colonies, responding to regional, national and even global demands. Those played an important part in not only regarding its resulting urban form but also in the settling of its people and in the formation of its society, with a considerable input from immigrant farmers and non-farmers.

Very precociously, Belo Horizonte presented a significant set of urban legislation that overlapped its initial plan's formal settings, in the attempt to manage, organise and regulate its initial and future occupation. The incremental nature of this body of laws, always reacting to new demands and latent everyday practices, make them closer to the realm of practices than of ideologies. When seen as a unique body, if that is even possible, one can say that they respond to certain ideologies, that is, aiming to shape human life according to imaginary representations through projecting ideal scenarios. Such scenarios include the logical organisation of the city, meant to serve as an engineering model, a functioning administrative capital but also an industrial and commercial centrality in the State. This body of laws, in reality, tried to organise a rhizomatic, incremental and unpredictable urban settlement development, which responded in fact to everyday habitus. Although in a completely different setting, small acts only reproduced the structuring principles of Brazilian society, as it was impossible to reinvent a new society by inventing a new city. Thus, old patterns of social segregation, informality and improvisation have succeeded in making their ways into the new city, leading to subsequential and cyclic practices of building, regulating, and adapting, but not necessarily in this order. These processes and patterns will perpetuate as habitus in the next episodes of Belo Horizonte's history, always restructured but with similar objective principles.

The focus on landscape, operated through the production of an interpretative cartography allowed to see how landscape elements such as topography and water played an important role in its conception and realisation. Although the plan undoubtedly follows the dominating urban form paradigms of its time, the use of the grid and diagonals being the most evident, the local translations of this model were here made explicit, questioning the idea of the transfer of models which is a dominant in Belo Horizonte's historiography.

The cartography produced was used as a strategy to construct a spatial narrative through an operative combination of story-telling with mapping. Approaching the construction of space as a landscape has allowed to combine diverse facts, laws, projects into the same map, in order to discover and later

expose the complex system of actions that make space. It has contrasted for example maps produced in different times with different purposes and to critically access the drives to urbanization in Belo Horizonte. The map in Image 43 has exposed for example how the initial strictly defined urban, suburban and rural zones get subverted and fragmented through a succession actions towards space, such as the agricultural colonies and the workers sector. It allowed also seeing that the construction of Belo Horizonte is not made out of the initial plan only, but gradually, through a succession of transformations, which presuppose transitions and co-existences between the demolished village, the surrounding farms, with the new city and the newcomers. Overlapping theses operations to the cadastre map of 1928-29 explains the city form in this period, allowing to understand why only part of the urban zone was occupied and also explaining the pattern of occupation in the suburbs rather than framing it simply as unplanned. Mapping allowed identifying that the suburban occupation followed not the preliminarily drawing of Aarão Reis, but the logic of its landscape, occupying spaces along the Arrudas Valley while also being highly influenced by the agricultural colonies implemented. Through Images 44 and 55 it is possible to access directly the material results of this subversion, by comparing two sectors of the urban plan which received different treatments and populations, that is, the workers zone and the functionaries neighbourhoods.

Cartography has thus contributed greatly to the construction of this spatial narrative for its power of verifying directly on space the effects and results of projects, laws and specific actions.

Endnotes

1 In the period, the consulted newspapers kept a consistency of title in articles concerning with the same topic across many editions.

2 See Mumford, 1961; Rabinow, 1995

3 Such comparisons have become almost common sense in the bibliography of Belo Horizonte. Some references to be cited are: Aguiar, 2006; Correa, 2016; Le-Ven, 1977.

4 Free translation by the author. In the original: *"(…) é a materialização do diagrama das relações de forças de um momento de inflexão da história brasileira – entre um colonialismo e outro, entre o escravistmo e o capitalismo, entre a monarquia e a afirmação da República"*

5 According to the author, the first preconceived geometrical plans were found in Mesopotamia in the 8th Century b.C. (Ganlantay, 1977, p. 23)

6 The *Inconfidência Mineira* was a separatist movement, coordinated by Minas Gerais elite members who desired to be free from the colonial control. One of the main motivations was the high taxes charged by the colony (one-fifth of the gold extracted) and its strict control on political and economic realms. The movement was reprehended, and all its leaders were sentenced to death, after a final judgement in 1789. See (M. E. L. de Resende, 2007).

7 Joaquim José da Siva Xavier was a lieutenant known as Tiradentes which means "tooth puller" in reference to his practice as a dentist, amongst many other professions he accumulated.

8 After the republic instalment (1889) it became the State of Minas Gerais as a federalist system of government was chosen.

9 Constituição da República dos Estados Unidos do Brasil, (Brasil, 1891)

10 The *Assembléias Constituintes*, were assemblies held at the *Congresso Constituinte,* a temporary congress specially composed for the discussion and the voting of Minas Gerais' Constitution.

11 Although the National Constitution of 1891 had already announced the shift away from Rio de Janeiro, including the choice of a new location, Brasilia was only constructed half a century and two constitutions later.

12 See more on http://cbhvelhas.org.br/, last consulted on 3rd July 2019

13 Free translation by the author. In the original: *"Estabelecer a divisão civil, judicial e eclesiastica do respective Estado e ordenar a mudança de sua capital para logar que mais convier"* (sic). Text available at https://www25.senado.leg.br/web/atividade/legislacao last consulted on 3rd July 2019

14 The spelling 'Bello Horisonte' refers to the old village which the new State capital replaced. The latter acquired the same name, although its spelling was changed to 'Belo Horizonte', its current version. In order to keep the distinction between the former village of Arraial de Bello Horisonte and new town, the difference of spelling will be maintained.

15 The report is mentioned by Mr Manoel Eustachio in the session held on May 16th, 1891 (Jornal de Minas, n. 79, 1891)

16 See editions from November 1890 until May 1891, available at bn.gov.br, consulted on 18th April 2018.

17 The Congresso Constituinte was a temporary congress specially composed for the discussion and the voting of Minas Gerais' Constitution.

18 Free translation by the author. In the original: *"Fica mudada a capital do Estado para um ponto central no vale do Rio das Velhas, que se preste à edificação de uma grande cidade com as indispensáveis condições higiênicas. §1º- Esta mudança se realizará no prazo máximo de quatro anos, etc."*

19 Pledging the consideration of the valley of Rio Grande were Dr Abeillard Rodrigues Pereira, Dr Eloy Reis,

Mariano de Abreu, Severiano de Rezende, Carlos Marques. For the Mantiqueira plateau, Dr Henrique Diniz, Mello Franc, Dr Silva Fortes. The requirement for adding the plateau between Cattas Altas do Matto Dentro, Santa Barbara and S. Francisco, bordering Serra do Caraça was signed by Afonso Penna and I. Murta.

20 Free translation by the author. In the original *"Se o Congresso tiver de mandar estudar todos os vales* [sic] *do Estado de Minas, os valles do Rio das Velhas, de Paracatú, S. Francisco, Jequitinhonha, enfim, todo o território do Estado, que mede cerca de 20 mil léguas quadradas, área muito maior que a França inteira, está perfeitamente demonstrado que o praso [sic] de 45 dias para todos esses estudos, como querem os meus nobres colegas, é mínimo, é ridículo mesmo."* (O Estado de Minas Geraes, n. 167, p.2, 1891)

21 On the session held on 11th May 1891, Mr Clementino suggests that the claims asking that all valleys were considered make the transfer of the capital unfeasible since only 45 days were given for the survey works. In the opinion of Mr Costa Senna, studying only one river valley would be an incomplete resolution, leaving other important valleys aside. (O Estado de Minas: Orgão Official, 27th June 1891).

22 Free translation by the author. In the original *"perfeita isenção de animo e de espírito, sem predileções prévias e, mesmo agora, sem paixões adquiridas"*

23 Free translation by the author. In the original: *"bazeado nos dados positivos reunidos pelos meus distinctos collegas, que egualmente se acham em identicas condições, visto como evitei cautelosamente recorrer à colaboração de profissionais mineiros"* [sic]

24 Free translation by the author. In the original: *"Nestas condições, julgo-me no direito de usar de inteira franqueza, sem preocupar-me de que certas verdades possam desagradar, de qualquer modo, àquellas pessoas que, deixando-se dominar por mal entendido espirito bairrista, não antepõem as altas conveniências do Estado às mais bem fundadas predilecções e aos mais legitimos interesses locaes"* [sic]

25 At the time, in Brazil, the terminology *Arraial*, referred to a settlement isolated from the village's central core but still belonging to the same municipal territory.

26 In the voting process, an amendment was proposed to change to eight years but was refused. (Linhares, 1905)

27 See Comissão Constructora da Nova Capital, 1895 and Salgueiro, 2001

28 Freire (2006) points to the mismatch between the orthogonal grid and the undulated topography. In Borsagli's (2016) opinion the topography of the location did not favour the installation of sanitary networks.

29 Sources: editions of O Estado de Minas Geraes – Orgão Official between May and June 1890. Digital versions available at the website http://memoria.bn.br, last consulted on 18th April 2018

30 The British traveller Richard Burton has travelled through its waters from Ouro Preto to Sabará while visiting the region in the mid-1800s. (Burton, 1869).

31 See annexes of the Study Commission (Reis, 1893).

32 Interview performed by the author on 6th March 2018.

33 A schematic survey map had already been elaboration by the Study Commission, some years before. (Reis, 1893)

34 As it has been suggested by Freire (1906), Vasconcellos (1947 apud Aguiar 2006) and Borsagli (2016).

35 Today's Avenida do Contorno.

36 Free translation by the author. In the original: *"Os serviços extraordinários a cargo da turma permanente, resposável pela sua conservação, tem consistido em grande movimento de terra, collocação de cascalho nos diversos arruamentos, plantação de grupos de árvores e conservação das mesmas, do que resulta um trabalho assíduo, de todos os dias, afora a plantação de grammas, collocação de adubos e desobstrução dos córregos dentro de seu perímetro."* [sic]

37 There is a curiosity in the naming of this street. In this area, all streets parallel to each other are named after

the Inconfidentes, the members of the eighteenth-century separatist movement above mentioned, all male. Marília de Dirceu, the exceptional street which was not in the initial plan, is the only female name, referring to the title of a poetry book by Tomás Antônio Gonzaga, one of the Inconfidentes, The main character Marília, was supposedly inspired by his fiancée Maria Doroteia Joaquina de Seixas Brandão, one of the women involved in the movement.

38 See O Estado de Minas Geraes: Orgão Official, editions N. 155, 16th May 1891 and N. 167, 27th June 1891.

39 Free translation by the author. In the original: *"O projeto geral da nova capital será delineado sobre a base de uma população de 200.000 habitantes, e sobre esta mesma base seria efetuada a divisão e demarcação dos lotes; as obras, porém, a executar desde já, serão projetadas e orçadas sobre a base de uma população de 30.000 habitantes, devendo, entretanto, os respectivos projetos sejam organizados de forma a permitirem o natural desenvolvimento das obras executadas à proporção que for aumentando a população."*

40 the government administration was divided in *Secretarias*, similar to Departments

41 Law 205, 12th September 1899

42 The *Conselho Deliberativo* was closed in 1930, under the Vargas' dictatorship. Only in 1936 the Câmara Municipal, the municipal chamber, was created to decide on local issues. It was however closed again in 1937 and reopened again in 1947. (www.cmbh.mg.gov.br)

43 The name of the city was initially Cidade de Minas, while the district was still named Belo Horisonte. The city name changed to Bello Horisonte in 1901, later spelt Belo Horizonte.

44 According to Singer the sales of plots alone was not sufficient for financing the city construction, not only due to the small number of plots sold until 1897 but also the low prices reached at the public auctions, forcing the State to take successive credits in 1895, 1896 and 1897, this time with the Bank of Paris and the Netherlands (1968, p. 220).

45 Free translation from the author. In the original: *"alguns, situados nas proximidades da estação Central, nas ruas e avenidas que a ligarão com o centro da future cidade e nas proximidades do Mercado, se acham em magnífica posição para commércio, fábricas e grandes depósitos; outros situados na grande avenida – Afonso Pena – ou em suas proximidades e na do Parque estão destinadas para aprasíveis residências, com esplêndida vista para a estação, egreja e outros pontos"*. [sic]

46 Differently from Paris or Barcelona, Belo Horizonte's plan did not include uniform buildings. Although some regulations concerned heights and setbacks, the volumetric result was very diverse.

47 The text where Reis explains the plan is not part of the CCNC report. It was reproduced by Barreto, 1928, p. 245.

48 Free translation by the author. In the original: *"Art. 2º: A sua área será dividida em secções, quarteirões. E lotes, com espaços, avenidas e ruas necessárias para a rápida e fácil comunicação dos seus habitants, boa ventilação e hygiene."*(Minas Geraes, Orgão Official dos Poderes do Estado, N12, 1895). [sic]

49 Freely translated by the author. In the original: *"Car it ne suffit pas d'identifier un antécédent por en conclure qu'il constitue un précédant»*. (2003, p. 70).

50 To name a few: Salgueiro, 2001; Aguiar, 2006, Le Ven 1977; Correa 2016

51 Free translation by the author. In the original *"quando possível, a ir-se desenvolvendo do centro para a periferia, como convém para a economia municipal"*

52 Although not a market in its strict sense, the *feira* was a sort of permanent exposition hall for local products, from mining to farming and hand-crafts. Today the site holds the city's main bus terminal, maintaining its public social function.

53 Its current building dates from 1964

54 At the time, the head of the State was called the President of the State. During the Vargas dictatorship (1930-

1945), the position changed to "Interventor". After 1947, the position changed the name to Governor, as it is still called today. The building is today called Palácio da Liberdade and holds the office of the state Governor.

55 *Secretaria de Agricultura e Obras Públicas* – was responsible for the agriculture and also public works.

56 The author refers to the plan of Aarão Reis, chief of this commission. Free translation by the author. In the original: *"A gestão dos espaços da nova cidade, ao longo de suas três primeira décadas de vida, estabeleceu efetivamente a segregação social, ainda que esta (…) não estivesse prevista no plano da CCNC"*

57 Free translation by the author. In the original: *"A gestão do espaços da nova cidade, ao longo de suas três primeiras décadas de vida, estabeleceu efetivamente a segregação social, ainda que esta, ao contrário do que nos afirmou Le Ven, não estivesse prevista no plano da CCNC".*

58 Free translation by the author. In the original: *"Os lotes destinados às edificações urbanas e suburbanas serão vendidos em hasta pública (…)"*

59 Free translation by the author. In the original: *"mais de vinte lotes urbanos, de dez suburbanos, ou de vinte entre os de uma e outra espécie."*

60 the closest translation would be a Code of Conduct, including building regulations, bureaucratic procedures and police matters.

61 The plots around this area had different sizes, between 450-525 $m^{2,}$ so they would cost between $900000 and $1.575000 *réis*.

62 the same exemption was offered however to properties owners of Ouro Preto and transferred public functionaries, to whom plots were given.

63 *Cortiço* is a collective housing typology, in which small rooms are rented at small prices with the sharing of common areas such as bathrooms, kitchen and laundry. For more on *cortiços* see Bonduki, 1996.

64 in Portuguese this is called *Platibanda*

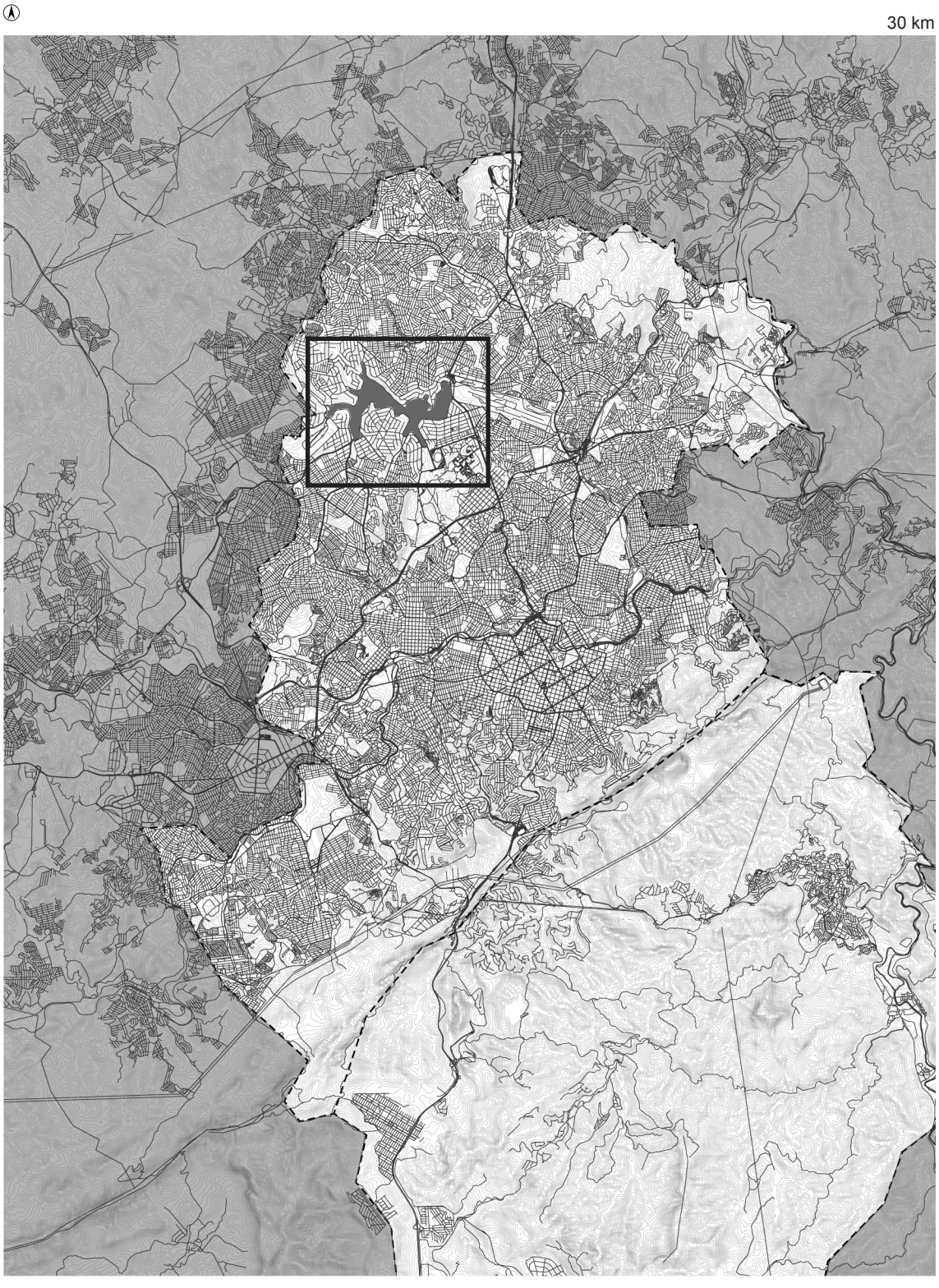
65 Besides working for the CCNC, Camarate was a very enthusiastic writer, publishing several personal essays about Belo Horizonte during its construction.

66 Free translation by the author. In the original: *"A acção da Prefeitura (…), tem sido benéfica ao desenvolvimento da cidade, facilitando a acquisição de terrenos, para construcção de prédios, às diversas classes sociaes, principalmente aos operarios e funccionários, de par com a consideração especial devida à creação de industrias. Não fora isto, o progresso da Capital ver-se-ia entravado, por longos annos, porque, com a valorização sempre crescent da propriedade particular, tem se tornado quasi impeditive sua acquisição, ou a construcção de prédios, principalmente para residência, por parte das classes menos favorecidas"*. [sic]

67 The state has, today, an area of 586.520,732 km^2 (IBGE, 2017), larger than France.

68 Law 55 of 1912

69 Until then, they were administrated by the State. After emancipation, they became regulated by the municipality.


30 km
40 km
1:200.000

3

Pampulha

This chapter will present the second episode of Belo Horizonte's spatial history, the case of Pampulha, the first planned and simultaneously dramatic territorial expansion in the city. Repeating the city's very first foundational gesture, Pampulha emerges as a result of a State project, creating a new urbanity from scratch in a new territory. It consists of a meaningful episode in Belo Horizonte's spatial history for the deliberate landscape transformations of a large territory, covering an area similar to the city's foundational urban core, totally outside the existing city, through particular private-public alignments. Conceived as a leisure space outside the city, it has been the object of special regulations, having received continuous waves of investments aimed to preserve its recreational character, while at the same time being engulfed in the maelstrom of the metropolitan dynamics.

The following analysis will uncover the rhizome of socio-economic and political arrangements behind this project and which have unfolded from it. The focus on processes and actions applied on the modification of nature and the construction of new urban objects will make the transition between the conception of such space to its lived-in materiality. The analysis therefore goes beyond exposing the administrator's initial intentions and modern dreams for Pampulha, unfolding the practices of urbanization and arrangements which have derived from its first idea and resulted in its current spatiality.

The materialization of Pampulha has been approached through a cartographic analysis of a series of allotment approval plans, available at the digital archives of Belo Horizonte's municipality. Drawn and approved separately, those form together the materialized urban form of the neighbourhoods around the Pampulha lake, each with different characters according to the location, the regulations applied and the period of construction. The most emblematic types have been analysed individually, assessing their process of formation and its current state. Historical information and cartographic analysis have been added by interviews with residents as well as general impressions by the author based on site visits, informal conversations and life experience.

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Image 56:
Urbanized areas in Belo Horizonte and spatial frame of the second episode.
Source: by author, 2019

It is here presented as the second episode of this narrative because of its exceptionality, being built through a process considerably different from Belo Horizonte's conventional suburban growth and in a completely different form than its original grid. Although it repeats the foundational move seen in the city's instalment itself, Pampulha was not the result of one comprehensive governmental urban plan, one in which urban form, boundaries, functions and programs are previously defined through a unique design, as the foundational plan intended to be. Pampulha should not be considered a conventional urban project, but it surely can be labelled as a state project of some sorts. It resulted indeed from a particular vision and due to the amount of investments there made. It was not designed at once, but built through the layering of operative public or private actions and arrangements, relying on major infrastructure works to begin with. Altogether the municipality, in the persons of the mayors Octacilio Negrão de Lima and later Juscelino Kubitshcek, had one general idea in mind: making double use of the hydraulic works to simultaneously realise a new leisure landscape for Belo Horizonte.

Seeing the intensity of the first moves, Pampulha is here considered as a second foundational gesture, after the shift from Ouro Preto to Belo Horizonte. The distance from the core of Belo Horizonte is of course instrumental. It allows to make a new foundation, to start a fresh, undisturbed with the existing city. As the foundation of Belo Horizonte itself, its emergence represented continuity and rupture simultaneously. Rupture in the sense that it breaks away from the grid and starts, somewhere far away, a new form of occupation in a 'virgin' location according to new principles; continuity in the sense that it is again foundational, essentially segregated, and its construction is again associated with expressive ground manipulations. Founding seems to go hand in hand with a drastic adaptation of the topography and the landscape in general.

The 1940's inaugurated a period of great changes in Belo Horizonte, under President Getúlio Vargas' *Estado Novo* and the agitated administration of Juscelino Kubistchek at the Municipality. Since at least the mid-1930s the country was going through intense changes in the political, economic and also cultural spheres, with a fast industrial development and the emergence of a modern nationalism associated to a dictatorial regime (Bahia, 2011; Singer, 1968). It is in this context that Pampulha emerges only 40 years after the city's inauguration, 12 kilometers far from its foundational stone, and this while the original city plan was not yet fully developed.

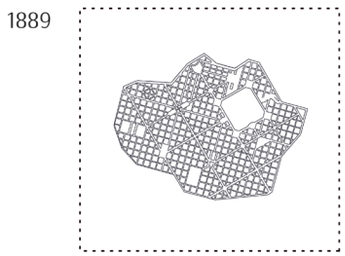
> Image 57: Timeline of Events and urban form from 1895 until the 1950s. Source: by author, 2019. Data from Prodabel.

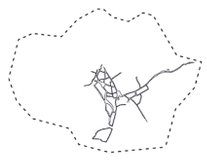
In Belo Horizonte, the moment in which Pampulha emerges can be characterized by paradoxal feelings oscillating between euphoric

BELO HORIZONTE INAGURATION 1897
PAMPULHA AIRPORT 1933
Rio de Janeiro Project MES 1936
PAMPULHA DAM 1937
Inauguration of Niemeyer's buildings 1943
CONTAGEM CIDADE INDUSTRIAL 1945
Energy CEMIG 1953
RUPTURE OF DAM 1954
INVESTMENTS

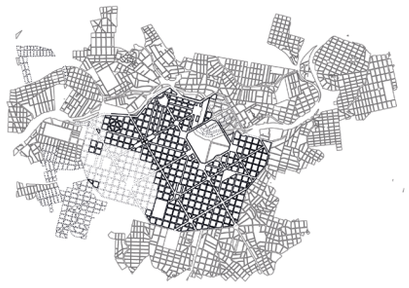
AARAO REIS PLAN 1895
WORKERS VILAGES 1919
CADASTRE MAPS 1928-29
Comissão Ténica Consultiva 1934
Allotment law Belo Horizonte DECREE 54 1935
Allotment law Pampulha DECREE 55 1939
PLANNING

REPUBLIC 1889
1895
ERA VARGAS 1930
NEGRÃO DE LIMA (MAYOR) 1935
ESTADO NOVO 1937 1938
JUSCELINO KUBITSCHEK (MAYOR) 1940
1943
END OF ESTADO NOVO 1945
NEGRÃO DE LIMA (MAYOR) 1946 1947
JUSCELINO KUBITSCHEK (GOVERNOR)
RENNÉ GIANETTI (GOVERNOR) 1951
POLITICS

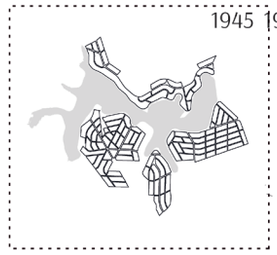


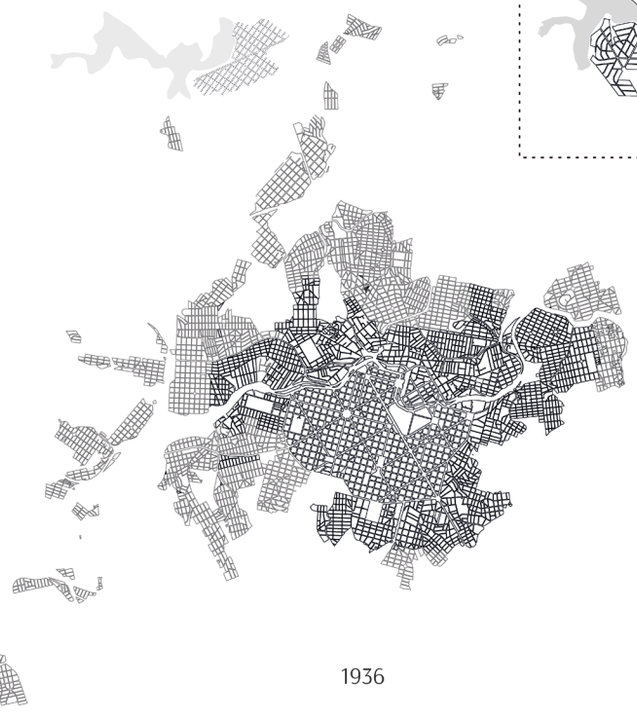


1893

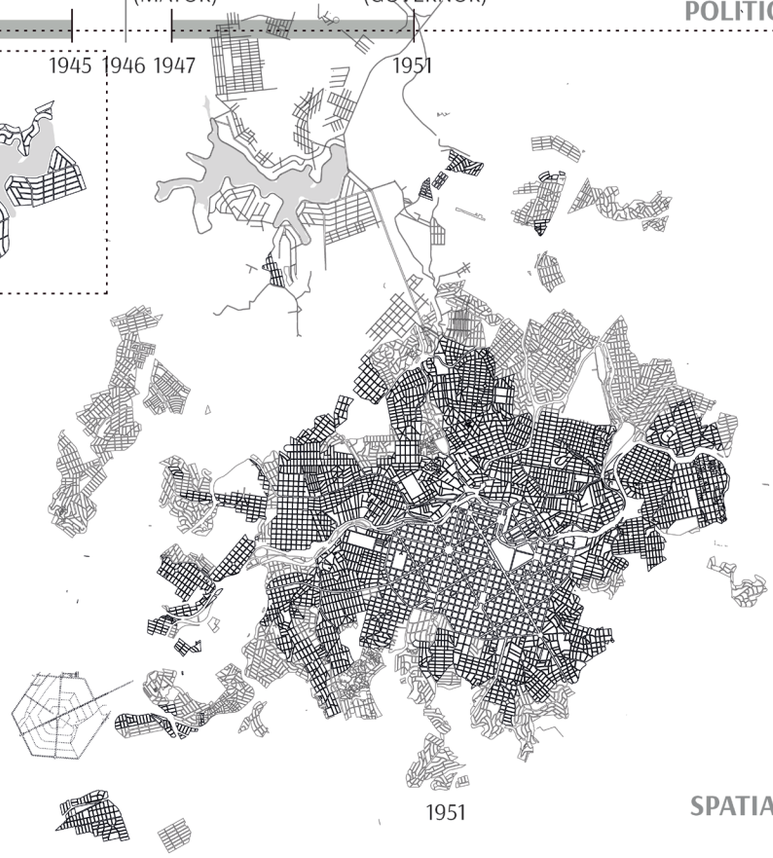


1928





1936



1951

SPATIAL

expectations of a city and a society in a maturing, modernizing and expansion process, and the deceptions and dissatisfactions of a city still incomplete and empty. In the opinion of Kubitschek, when he started his work at the municipality "Belo Horizonte was a new city, and as such, lacking many things. It seemed more like a garden than an urban centre". (Kubitschek, 1976)[1]. Consequently, he engaged simultaneously in the remodelling of the city centre and the construction of Pampulha, amongst many other doings. In his words:

> *"The remodelling of the urban centre, with the asphalting of its main public ways and the modernization of correlated services of water, lightning, sewage and telephone, constituted main priorities. But it was not all. The city needed to breathe. Acquire its own lungs. I remembered then of Pampulha – a heavenly refuge, orphan from the municipal authorities' attention."* [2] (ibid, 1976, p. 31)

The double sensations of optimism and deception are added to the contrasting perceptions about the city's materialization which, on one side, grew out of control in the impoverished suburbs and, on the other, seemed empty in its centre. While it was still under construction, it appeared to be already partially in ruins. Abandoned constructed sites did not contribute to the appeal of the city (Salgueiro, 2001). Despite the sense of incompleteness, the government created, already in 1934, the *"Comissão Técnica Construtiva da Cidade"* - a technical commission for the construction of the city aiming to manage its main structural problems. Those were mainly related to the uncontrolled suburban expansion, in poor infrastructure conditions. The commission also eventually proposed solutions.

The chronicle of Malzarte *"Ruas sem história"* (Streets without history) in Revista Bello Horizonte exemplifies this:

> *"In Belo Horizonte there were beautiful streets, in the times of the Curral d'El Rey*[3] *- informs us the former senator Modestino Gonçalves. Today, senator, neither old streets, nor modern ones. What is found here is long lines of trees only (…)"* [4] (Malzarte, 13th of October 1934)

The text witnesses the predominance of the vegetation over the constructions when the city was partially empty in the urban area. As exposed in the previous chapter, an effort has been made in the planting of trees not only in the park but in the opened new avenues. Growing on their own, the trees would allow for the image of a built-up city. The



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Image 58:
Airplane view of Praça Sete, at the crossing between Avenida Afonso Pena and Avenida Amazonas, in Belo Horizonte's city centre in 1949.
Source: APCBH, Coleção José Goes



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Image 59:
Airplane view around Praça da Assembléia in the Urban Zone of Belo Horizonte in 1962. The site was reserved until the 1950s for the construction of the University.
Source: APCBH, Coleção José Goes



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Image 60:
Airplane view of Cidade Jardim (1955), a garden-city inspired neighbourhood just around the Avenida do Contorno, built at the same time as Pampulha.
Source: APCBH, Coleção José Goes

anxiety of the city's inhabitant in this period is transparent, found in the tensions between the old and the modern, the nostalgia of the no-longer present - after the demolition of the village - and the modernity that was expected but is not yet there.

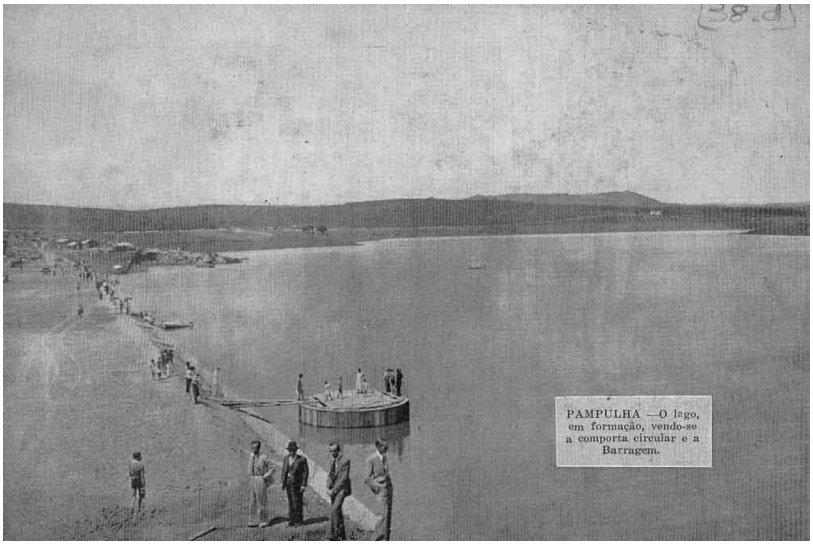
The same issue of the Revista Bello Horizonte features '*O Amor fugiu da Cidade*' (Love escaped from the city), signed by the codename Barba Azul, providing texture to the incipient suburbanisation and social segregation in the city, which deserves an extensive transcription:

> *"The inhabitants of Cachoeirinha[5] are protesting against the serenades performed there every night by the unhappy love. Cachoerinhha modernizes itself. In the old days, it was the aristocratic neighbourhoods that complained about this nocturne plague, residues from old country costumes acting in the new soul of the city. Today, the remote neighbourhoods, where the urban traces are confused with the rural line, no longer support the pains of non-corresponded love, the sighs of absence, the complaints of ingratitude. Love, banished from the urban perimeter is repudiated, now, in its own humble suburbs, inhabited by the workers, the small business men, the police men - the last people in the world that still love, in sum. (…)*
>
> *Evidently, the normal men, well fed, well dressed, well-coiffed and well loved, does not do serenades. But the shy, the betrayed, the jealous, the painful, those find sleep in the enemy bed in which they try to rest. They get up and go to the street, to the moonlight (…)*
>
> *The police hustle them from the centre, the streets of the slums don't want them, there is no space for them in the city. (…)"* [6]
> (Barba Azul, 1934)

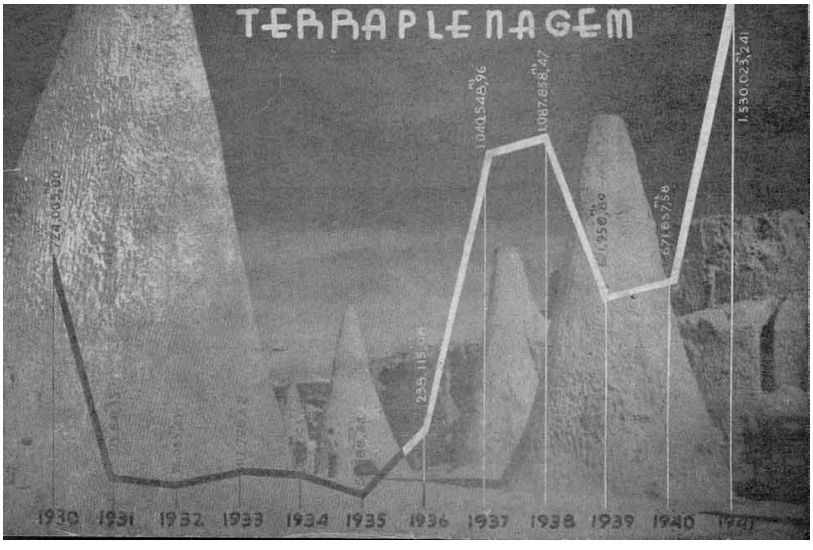
Here, the nostalgia is for the social customs typical of the suburbs that are losing their place as the city 'modernizes' and grows. The text also hints to the transitory condition of the suburbs in 1934, where urban and rural lifestyles and forms were juxtaposed. The preceding decades, between 1900-1920, is reported as a period of stagnation and slow construction (Castriota & Passos, 1998; Faria & PLAMBEL, 1979; Lemos, 1998; Salgueiro, 2001), especially if compared to the following decades when greater formal and structural changes occurred, including the construction of Pampulha and the industrial city. This stagnation refers, however, both to the lack of investments by the public administration in the construction of the city and to the slow consolidation of its center, still unpopulated.



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Image 61:
View of the lake between 1953 and 1955. At the back the former Casino, today the Museu de Arte da Pampulha.
Source: MHAB.



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Image 62:
The lake Pampuha in formation.Source: P.M. de Belo Horizonte, 1941



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Image 63:
Graph showing the volume of earthworks done by Belo Horizonte's municipality from 1930 until 1941.
Source: P.M. de Belo Horizonte, 1941

Meanwhile, the comparison between the cadastral map of 1928 and the one of 1942 (Images 41 and 55 in Chapter 2) reveals that this situation is true only in the central areas. The suburbs on the other side were expanding rapidly, as confirmed by the 1934 chronicle. The statistics of 1926 show that only 41% of the capital's buildings were located inside the urban zone (P. M. de Belo Horizonte, 1926).

Pampulha emerges therefore in a moment full of the tensions typical of the time. In this moment, the country's processes of modernization - in the sense of technological progress and industrialization - are paired with a growing feeling of modernity. However, the 1930s were a moment of exacerbating development and the diffusion of the modern, but also of a transition between the stability and certainty of the traditional agricultural society for the instability and uncertainties of the urban-industrial society. (Martins, 2008). For Heynen, modernity can be understood as an "attitude towards life that is associated with a continuous process of evolution and transformation, with an orientation toward a future that will be different from the past and from the present." (Heynen, 1999). Under this view, Pampulha could be interpreted thus as a project that looks at the future, attempting to inaugurate new forms of life in a new landscape outside the city, which was paradoxically old and new at the same time. However, as Martins (2008) has observed, while in Europe the theme of modernity is associated with progress, in Latin American and in Brazil its study must recognize its anomaly and inconclusiveness. For him, modernity in our context is also the permanence of the transitory and hesitancy, the everyday anguishes over the uncertainty of the linear progress. Constituted by unequal rhythms of social and economic developments, modernity in Brazil must be recognized as a combination of diverse historical times. Thus, not only Pampulha's move towards the future is here analysed but how it is constituted by hybridisms of past and future, translating traditional urbanization modus operandi in new formats.

3.1. Constructing landscape through dam formation

Pampulha is mostly known, on one hand, as an important step in Belo Horizonte's urban expansion towards the north and, on the other, by the authentic modernist architecture it features. Going beyond the established images of Pampulha, an aspect that should be here foregrounded is the enormous dimension of its landscape transformation. It implied the construction of a totally new landscape, superimposing its pre-existing

farming scenario. Seeing the case through the lenses of landscape allows to incorporate themes such as ground manipulation, water, trees and agriculture which have been so determinant in the conformation of Pampulha's territory. It allows to see, therefore, the processes through which it has been transformed from pasture to lake and lakeside settlements, in the interaction of man with nature.

The damming of the river Pampulha and other tributary creeks[7] between 1936-1938, created a water body with a surface around 2,6 km^2 and a shoreline around 18 kilometers long. This action created a completely other landscape then the one in Belo Horizonte, a city imbedded within a highly undulated plateau, 800 meters above sea level and 400 kilometres away from the Atlantic coast. This constructed landscape inaugurated a new mode of living in Belo Horizonte, as its dwellers could either live by the lake – the most fortunate – or simply sit and contemplate this new artificial nature on weekends. The investments made in the lake and surrounding avenue were soon capitalized upon by turning the environment into a picturesque neighbourhood at the same time as a touristic attraction. As a substitute for farming land, this could count.

Little is known about the former life of Pampulha before the damming of its river. The few records of this region attest that a farm named Fazenda Santo Antonio da Pampulha, which had received a small population of Portuguese and slaves at the end of the nineteenth century, was acquired by Manoel dos Reis and Ana Moraes dos Reis who came from Portugal in 1904 and installed themselves in the Arraial Santo Antonio da Pampulha. The farm was at the side of the Estrada Velha da Pampulha, a road that connected Belo Horizonte's center to the trading posts in Santa Luzia, north from the city and today belonging to its metropolitan region, passing through the village of Venda Nova, today in totally absorbed in the conurbation of Belo Horizonte (Carsalade, 2007). The farm belonged to a group of farmers around the Pampulha creek, with a population mainly of Portuguese and Italians, forming the agricultural expansion zone of Belo Horizonte.

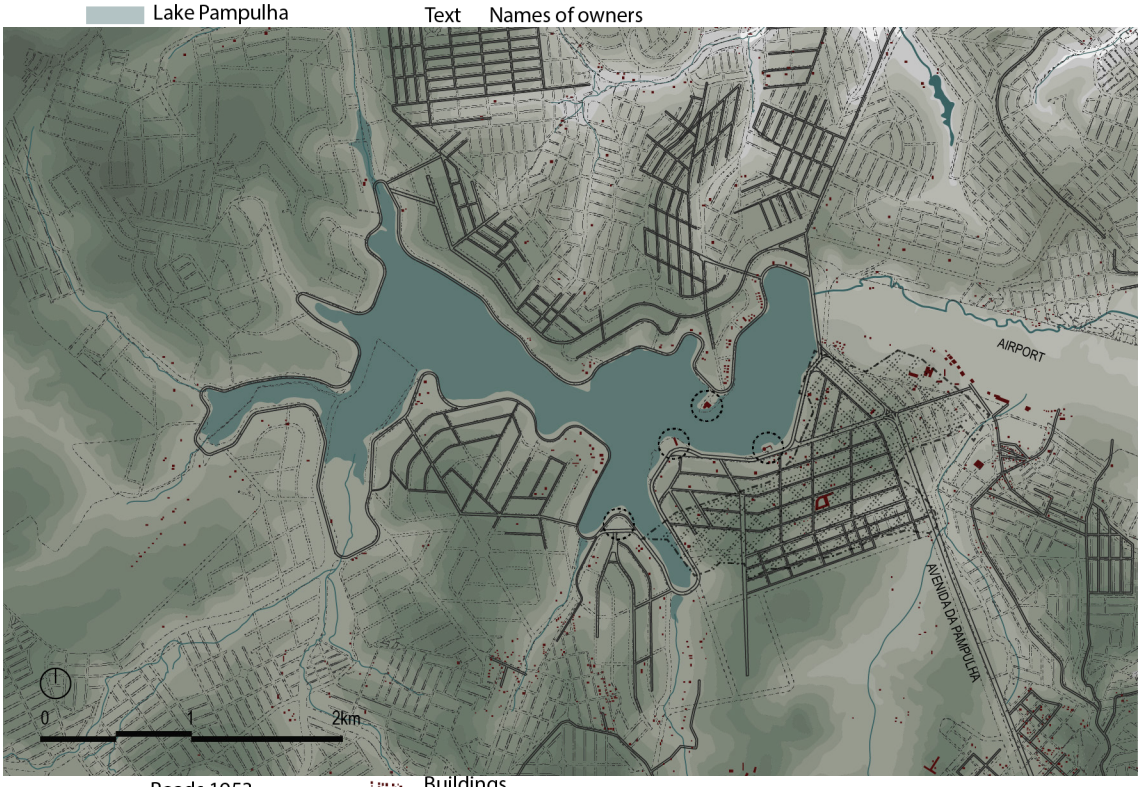
The history of the Arraial de Santo Antonio da Pampulha, or simply Pampulha Velha, was suffocated by the monumentality of Pampulha Nova (Ferreira, 2007). This village was located to the east of where the lake was formed, next to where today is the airport. It was therefore not affected by the dam and its first shoreline allotments, maintaining its life apart from the capital still for some decades, until it was swallowed by new allotments. According to the existing narratives, the village was formed around a chapel, which no longer exists and which location is imprecise.

>
Image 64:
Series of sectinos accross Pampulha's territory, overlayed with its urban mesh highlighting the firts allotments built according to the regulations of 1939. Source, by author, 2019 with data from Prodabel.


0
1
2km



Roads
Future Roads
Water courses
Lake Pampulha
Farming
Indistinctive secondary vegetation
TEXT Names of places
Text Names of owners



Roads 1953
Current mesh (2014)
Water courses
Lake Pampulha
Buildings
Niemeyer's buildings

1:50.000

The village's life started to change in 1933 when a military aviation field was installed in a flat swamped area in its proximities. At first the access was difficult through the old un-paved road connecting to Belo Horizonte. In 1937, as the dam was being constructed, the airport inaugurated its first commercial flight by Panair, already transformed in Belo Horizonte's first commercial airport (ibid). After this first infrastructural project positioning Pampulha between the airport and the city core and soon gifted with an extraordinary lake, one began to be se Pampulha as an area with a great future, which would start by the damming of the river. From this moment, the history of Pampulha was only the futuristic one, always looking ahead and no longer looking at Pampulha Velha, as it also happened with the Arraial de Bello Horisonte when it was substituted by the new capital. While the topologies have remained, urban form and lifestyle was changed drastically.

< Image 65: Map of Pampulha in 1940. Sources: by author. Data from historical maps available at APM: "*Estado de Minas Gerais. Município de Belo Horizonte. Departamento Estadual de Estatística. 1940.*"

To complement the picturesque landscape in formation, the artificial lake was supplemented with architectural monuments designed and placed according to the lines and volumes made by the lake curves and the small surrounding hills. Those were a Casino, a ballroom (Casa do Baile), a Yacht Club, a church (Igreja São Francisco de Assis), a hotel and a golf club (the last two were never built), all designed by the then young architect Oscar Niemeyer, commissioned by the mayor Juscelino Kubitschek[8] (see further). For him, the transformation of nature and architecture were part of a same project for a new landscape. In his words: "The lake mirrored the surrounding hills, and to this game of reflections joined the harmonious lines of the architectural ensemble.[9]"(1976, p. 52). Lake, hills and architecture thus fitted in harmony to compose a unique scenario. The architecture of Niemeyer has broken many barriers installing notes of modernity at the borders of the lake that were fundamental not only for the construction of a new landscape but of new social practices and new modes of urbanity.

< Image 66: Map of Pampulha in 1953 contrasted with current mesh (2014). Sources: by author. Data from cadastre maps available at the library of Escola de Arquitetura, UFMG: "*Levantamento Aerotogramétrico executado para a Prefeitura de Belo Horizonte por Serviços Aerofotogramétricos Cruzeiro do Sul SA. Prefeitura de Belo Horizonte. Administração Américo .Rene Giannetti. 1953.*" and data from rmbh.gov.br

When Kubitschek started his administration at the municipality in 1940, the dam was already partially formed, built under the initiative of the previous mayor, Otacílio Negrão de Lima. Seeing the potential of Pampulha, he decided then to give it special attention by enlarging the dam, enhancing the value of the water element. For him,

> *"It was not only about an architectural creation adequate to its location. In Pampulha, the landscape would be transformed by human hand, with the introduction of a new element – the water. This would be, in the expression of Aufrére,* the spiritual



<
Image 67:
Public spaces arund the Igreja São Francisco.
Source: by author, 2016.



<
Image 68:
Public spaces at the lake shore
Source: by author, 2019



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Image 69:
Fishing at Pampulha lake. Although is not permited it is practiced on a daily basis.
Source: by author, 2019.

> landscape. *A scenery chosen and prepared for the architectural ensemble, conceived according to the modern aesthetics."* (Kubitschek, 1976, p. 46, highlights in the original).[10]

The construction of the scenario around the water should not obscure, however, its primary functionality in his view: to provide leisure for the city. Thus, he complements: "this would be its *social landscape,* the alteration of nature, so it would fit the purpose of attending the necessity of collective recreation."[11](ibid, p. 46) The mayor was particularly excited with the prospect of having rowing competitions in a hinterland city such as Belo Horizonte (ibid).

To the water body, another layer of nature was added, with the planting of small trees and dwarf palm trees to the paved avenue surrounding the lake. "All well thought and calculated, as to imprint a different *décor* to the mineiro landscape."[12] (ibid, p. 52). This new layer builds therefore a green mass that was not present in Pampulha's farms and included exogenous plants such as palm trees[13]. The aerial pictures of 1948 and 1953 (See Images 70, 71 and 90) are witness to the previously naked surface of Pampulha's allotted pastures, in contrast to today's dense constructed greenery. The vegetation formed is today one of the main assets of Pampulha, besides the lake, being actually one of the elements included in UNESCO's enlisting of Pampulha as a Cultural Landscape (to be further detailed).

The construction of Pampulha's dam became also an opportunity to escape from the restrictions of the imposed orthogonal grid, constructing a totally new panorama. In Pampulha, the urban mesh is distributed according with the topography, maintaining the rectangular shape as a reference but slightly curved as to adapt to the slopes. At first, a low-density model was planned to ensure its character of a holiday resort of some sorts. Later, it became necessary to maintain this pattern around the lake once the areas around it became denser, with serious prejudice for the lake's health. With the expanding urbanization, the creeks feeding the lake were gradually canalized and most of them are by now covered and turned into sanitary avenues. They used to bring life to the lake, but now predominantly discharge sewage and deposit solid wastes, causing severe environmental issues, besides the silting of the lake and the loss of water volume. Since decades, many efforts have been made for cleaning Pampulha's lake, without too much effect, however. Swimming, rowing or navigating through its waters has been forbidden for decades. Fishing on the other hand remains a meaningful activity in the region. (Image 69)

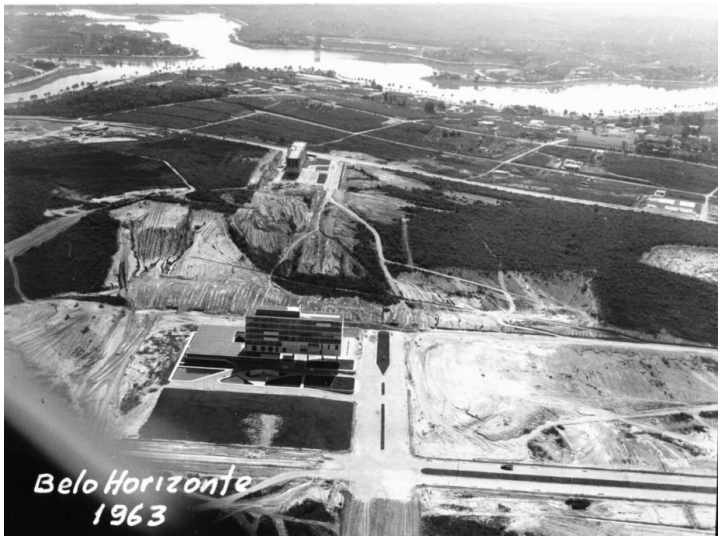
Seeing the making of Pampulha as a constructed landscape has allowed to



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Image 70:
Airplane view of Pampulha Lake in 1949.
Source: APCBH, Coleção José Goes.



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Image 71:
Airplane view of Pampulha Lake in 1948.On the finger to the left is the Casino and on the left is the late Clube. Further, the Casa do Baile is in an island in the right side.
Source: APCBH, Coleção José Goes.



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Image 72:
Airplane view of Pampulha in 1963 seeing the construction of the University campus in the foreground and the lake at the background.
Source: APCBH, Coleção José Goes.

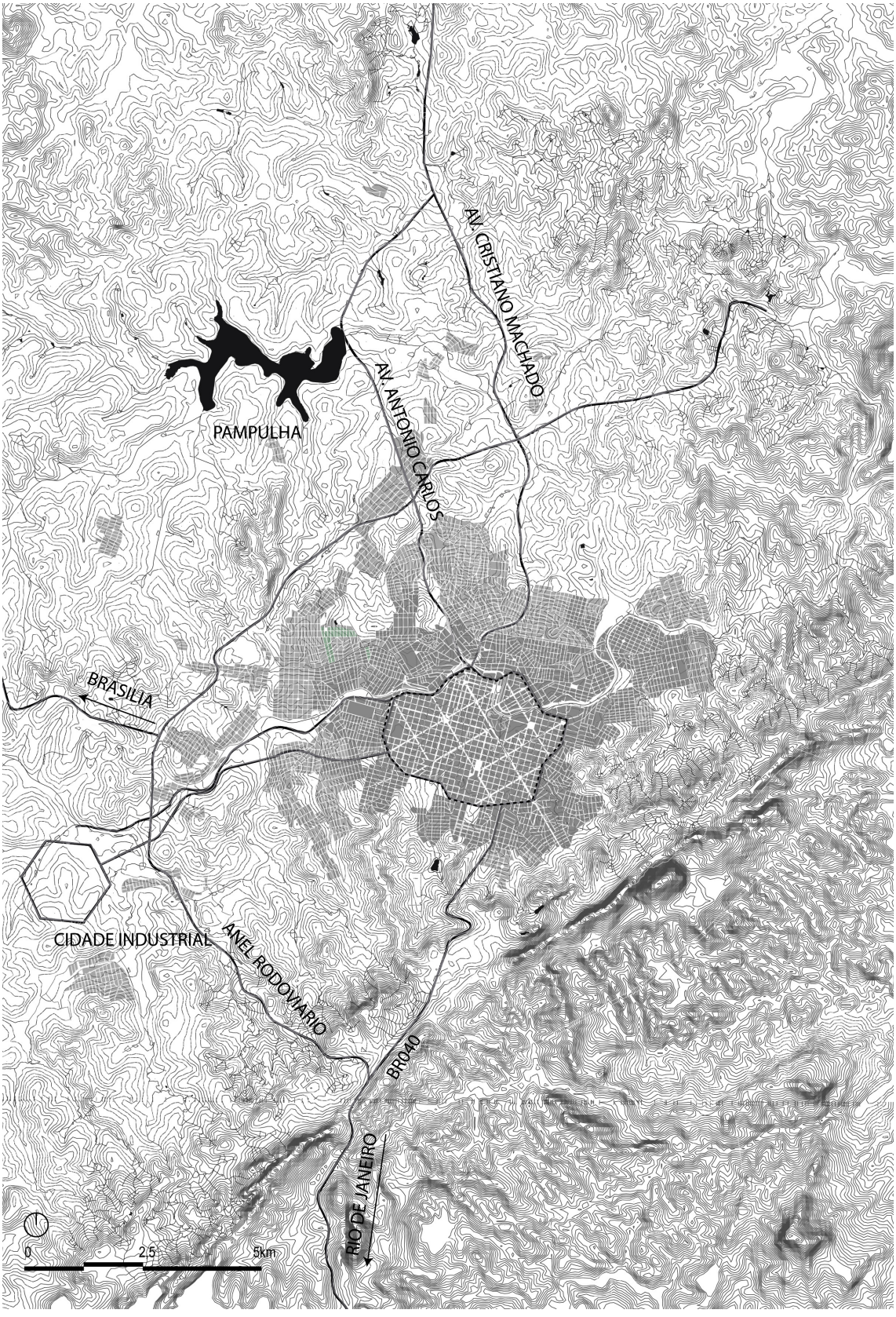
foreground the impact of constructing a large water surface in a former undulating farming land. After the lake was formed, its shoreline was later embellished with planted vegetation as in the construction of a garden, however in a very large scale. Today, the constructed environment formed in Pampulha, the lake and the surrounding green density is the one which many laws and regulations tries to protect and the one also recently enlisted as a UNESCO heritage. (see further)

3.2. Incremental Infrastructure

One important aspect that has put Pampulha in the spotlight of Belo Horizonte's history is the amount of investments directly or indirectly made by the State and how much attention it has attracted from the authorities since at least eight decades.

One of the collateral effects of the investments made in Pampulha, capitalizing on the dam in construction to the materialization of a satellite resort, was the city development towards the north direction. Although it never really functioned as a proper satellite town – that is, conceived and designed to have its own life with residences and services apart from the main city – it is here called as such in the lack of a better term that expresses what Pampulha essentially was in its beginnings: a residential and leisure nucleus built outside the city. It is not today perceived as a satellite city[14], as the ones outside Brasilia for example, but it has been once labelled as such in the past. Invited by the then mayor Kubitschek to visit the city, the French urbanist Alfred Agache had suggested, in June 1940, to build a satellite city for workers around the lake in formation, worried about the social problems and the disorder he saw in the city (Kubitschek, 1976, p. 31). This idea was however not taken on board by the municipality. In 1948, five years after Pampulha's 'inauguration' – that is, the inauguration if its main buildings -, the then mayor Otacilio Negrão de Lima, in his second mandate, presented in his administration report a section about the Satellite Cities, which he considered necessary due to the excess of population and the lack of water of Belo Horizonte. In his conception, the Barreiro area – in the east portion of the capital - was already an agricultural satellite – a former agricultural colony implemented in 1895 -, the recently created Cidade Industrial in Contagem would be the textile centre, while Pampulha was the centre of tourism and entertainment (P. M. de Belo Horizonte, 1948).

In the mid-1930's, as Belo Horizonte expanded outwards is inaugural


AV. CRISTIANO MACHADO
AV. ANTONIO CARLOS
PAMPULHA
BRASILIA
CIDADE INDUSTRIAL
ANEL RODOVIARIO
BR040
RIO DE JANEIRO
0
2,5
5km

borders and started to change at its heart with the construction of its first skyscrapers, the municipality began to show concerns about the city's future. Since slowing down urban expansion seemed an impossible mission, it was urgent therefore to, on one hand, guide and predict the directions of urban expansion and, on the other, to make plans for a rational growth while executing a series of infrastructure works to supply the demands of an ever-expanding city. In addition to creating a functioning industrial park, improving the electricity system and paving new avenues, one of the urgent issues of Belo Horizonte at the time was the provision of water for a growing population. It was with this objective that the damming of Pampulha river was advocated for in the first place. The project of the dam included an avenue 14 km long to be constructed around the shoreline, which already indicates an intention of urbanization anchored on the water infrastructure project. Dam and avenue were therefore the first objects implemented in Pampulha, initiating a process of profound transformations.

In Octacílio Negrão de Lima's mayor report of 1935-36, in his first mandate at the municipality, the construction of Pampulha's dam is presented for the first time in official documents as a simple water management solution, offering technical advantages if compared to the damming of Arrudas River - the one tangent to the city core. It offered a larger capacity with lower cost. A simple sentence, however, makes a gesture towards Pampulha's future recreational character: "The accumulation [of water] will serve for the practice of water sports" (P. M. de Belo Horizonte, 1937a). In that same year, 1936, in a speech at the municipal chamber, the mayor already announced the construction of a new and picturesque neighbourhood in Pampulha (Ferreira, 2007).

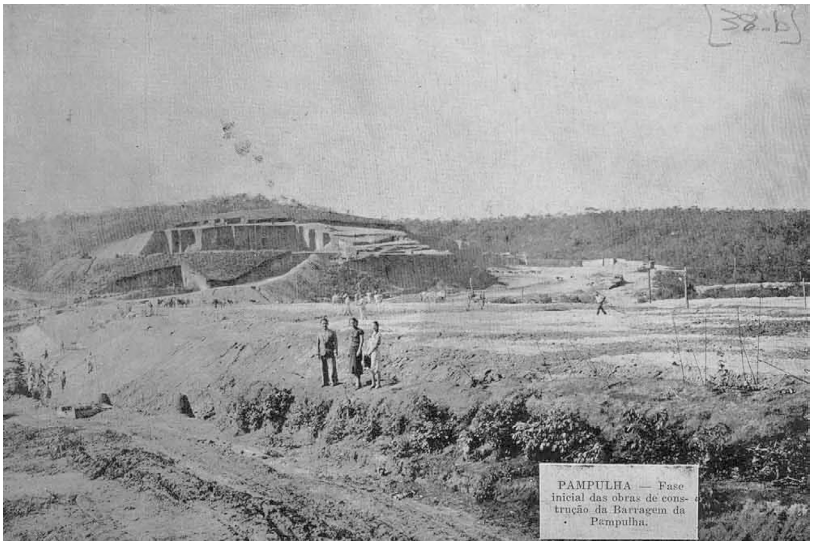
Although not clearly stated, the simultaneity of this infrastructural works and the construction of a new neighbourhood, with a recreational character, is far from being coincidental. Likewise, it is improbable that the idea of taking advantage of the beautiful landscape in formation for building a leisure complex comes as a genuine and obvious consequence of technical rationalities such as water supply. Such 'coincidence' opens space to speculate that the marriage between both projects is aligned to ongoing political projects of national development through modernization.

The dam construction also coincides with a moment in which the municipality started to show concerns about the lack of recreational areas in the city. In his 1935-35 report Negrão de Lima criticized the location of Belo Horizonte's Municipal Park. For him, the park was situated too close to an intense commercial zone, next to the railway station, where it

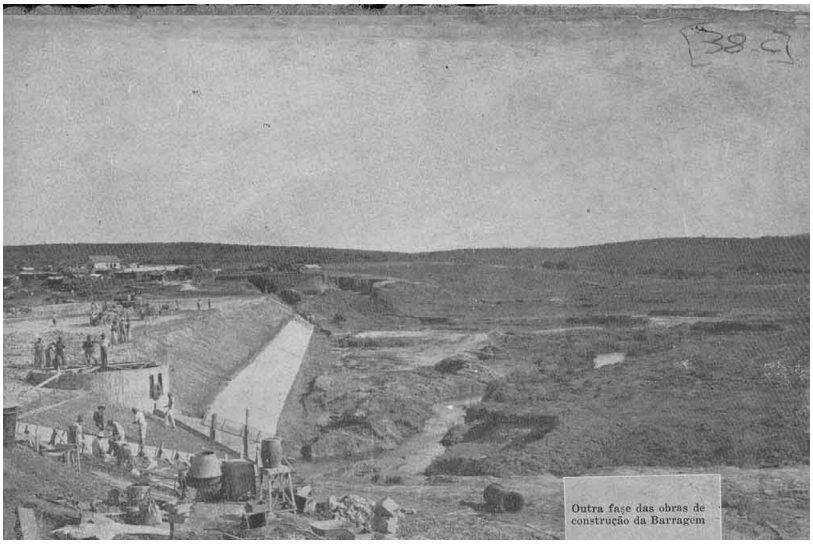
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Image 73:
Belo Horizonte's urbanized areas in 1936, with main investments done from the 1940s onwards: Pampulha lake (1938), Cidade Industrial (1946) and major highways . Source: by author. Data from cadastral map of 1936 available at APM and data from rmbh.gov.br



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Image 74:
The opening of Avenida da Pampulha, today's Avenida Antonio Carlos.
Source: P.M. de Belo Horizonte, 1941



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Image 75:
The construction of the Pampulha dam.
Source: P.M. de Belo Horizonte, 1941



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Image 76:
The construction of the Pampulha dam.
Source: P.M. de Belo Horizonte, 1941

would be preferable to construct warehouses. In this sense, he advocated for the construction of a new park, Parque de Santo Antonio, as the only possible use of a large reserved public area with challenging topography, originally meant to host a zoo (P. M. de Belo Horizonte, 1937a). This site is located in the south-west corner of the urban core, the last to be urbanized and consequently the most valued. After the expenditure of great public resources for sports facilities including an Olympic-size swimming pool, the club constructed in the park was given in concession to a sports association and later privatized for exclusive users.

The simultaneity of events makes evident the prominence of Pampulha in fulfilling the recreational gap left by the incomplete implementation of Reis' plan. One of the engineers composing the *Comissão Técnica Consultiva*, Lincoln Continentino defended, in a text of 1935, the importance of the construction of other parks besides the Parque Municipal – which had already been mutilated by half of its planned size. Observing that the total area of gardens and parks should correspond to an optimal 15 to 20% of the city's area, he points that while in the urban zone there are sufficient squares and gardens, in the suburban neighborhoods they were completely forgotten (Continentino, 1937).

The emergence of Pampulha is also related to a period of growing governmental presence in the economy. State interventions "reinforced the symbolism of the public sector" (Almandoz Marte, 2014). Getúlio Vargas's Estado Novo (1937-1945) inaugurated an authoritarian, centralised regime which combined populism and nationalism with industrialization and development. The construction of state-representative landmarks as promoters of national identity was part and parcel of this project (Bahia, 2011).

While initiating new forms of inhabiting in Belo Horizonte, Pampulha also opened up a new area to urbanization (Image 87). Differently from the foundation of the city, where the State attempted a total control of the urbanization, from building to occupation, the infrastructure implemented by the State was only partial in Pampulha, acting nevertheless as great inducer of private urban developments.

The projects launched in this decade are reality outcomes that transcend any project for consolidation and densification of the urbanized areas, in favour of national modernization projects on the one hand and particular interests on the other. These conflicts make evident that the multidirectional character of intentions within an institutional apparatus are not free from internal contradictions. The 1930s were a period of

intense urban transformations and growth in Belo Horizonte, fuelled, amongst others, by the intense development of the steel industry during the 1930s (Singer, 1968). At the end of decade, the state project for the Cidade Industrial was constructed in the neighbouring municipality of Betim (today in the territory of Contagem)(Image 73). Its construction began in 1938 and was finished in 1945. However, it only fully functioned after the installation of the CEMIG, the State Energy Company (1953), which finally provided enough energy for a slowly developing industry. The projects of Pampulha and Cidade Industrial can be attributed to the partnership between the President Getúlio Vargas and the State Governor and subsequently Intervener (a position similar to governor, during the dictatorship) Benedito Valadares, in power between 1933 and 1945. The construction of Cidade Industrial was his project, with support from the President. For him, it was necessary to industrialize Belo Horizonte, and change its bureaucratic physiognomy, as it was known as the city of the functionaries. (Valladares, 2006 (1996)). In Pampulha he also had a direct participation as he was the one who appointed Juscelino Kubitschek as mayor, having a fundamental role in the regions' development, and later supported the construction of Pampulha's monuments (Kubitschek, 1976).

The administration of Juscelino Kubitschek (1940-1945), underlined by his personal political projects, was decisive to the formation of Pampulha's image and its national as well as international projection. Soon after the dam completion, in October 1940, Kubitschek became Belo Horizonte's mayor taking Pampulha's project as a priority under his five years' administration. His first-year administration report celebrates the opening of radial avenues to facilitate traffic and flow, acknowledging the city's horizontal expansion in all directions, in contrast to the previous administrators who wished to contain urban development rather than expand the urbanized area. It included the works on the Avenida da Pampulha, a wide avenue connecting the city directly to the recently constructed dam, through the expropriation of an area 125 meters wide and 6,5 km long. The road facilitated access to the new airport and the new neighbourhood in formation, soon to become 'one of the most enchanting of the capital', in his words (P. M. de Belo Horizonte, 1941). The opening of this avenue had as a consequence the development of a significant number of new villas (settlements) along its margins in the following decades, closing the gap between the foundational core and the new satellite town, substituting the agricultural land in between (See Image 87).

In the same report, a whole new chapter is dedicated to the works in Pampulha, defending it as a necessary expansion to the city which was,

according to him, becoming denser, as skyscrapers were replacing the old houses. His impression of a 'denser' city is a reaction to the incipient substitution of the dominant low house typology by office towers, rather than a real densification. In fact, until the 1960s a significant portion of the city core remained unoccupied while the city grew more outwards than inwards (PHOTOS). Additionally, Kubitschek defended the creation, in a similar way that other great cities seemed to have, of a series of attractions, betting on tourism as a profitable industry. In his words: "(...) Pampulha is being built in a plan entirely diverse from the tracing of the capital, launching the basis for a residential district in completely different forms, but in accordance with the landscape offered by the lake and the constructions undertaken by the municipality with support from the governor" (ibid, p. 38). Therefore, Pampulha is the result of a desire of inaugurating a new form of urbanity rather than following an expressive demographic growth which required the necessity of expanding the city's tissue. Except for the privately constructed modern houses, the shaping of Pampulha as a modern urban settlement was much influenced and supported by the Municipality and the State.

As soon as Kubitschek took over the prefecture one of his first actions was to enlarge the capacity of the Pampulha dam, already envisioning a prominent future for this location. By that time, Pampulha had received the visit of the French urbanist Alfred Agache, in Brazil for a planning consultancy in Rio de Janeiro. Concerned with the social disparities seen in Belo Horizonte, the urbanist proposed the creation of a 'Satellite City' for housing workers in the vicinities of the lake (Bahia, 2011; Kubitschek, 1976; Segre, 2012). Kubitschek ambitioned however a luxurious shoreline neighbourhood that not only would perpetuate the image of a grandiose modern city but also guarantee enough taxes and tourism revenues (P. M. de Belo Horizonte, 1941; Kubitschek, 1976). The importance given by Kubitschek to the lake and the equipment built consolidated Pampulha's image as a leisure and tourism centre, and later the locus of sparkling modern architecture, while overshadowing the urbanization processes involved in the construction of the residential areas around the lake and its role in the urban restructuring of Belo Horizonte's region as a whole.

His project for Pampulha included a series of architectural landmarks commissioned to the architect Oscar Niemeyer - after previous experiences at the Ministry of Education and Health headquarters in Rio - together with landscape-architect Roberto Burle Marx[15]. Introduced to the mayor by the interventor Benedito Valadares[16], the then Minister of Education and Health Gustavo Capanema and Rodrigo Melo Franco de Andrade[17],

were both pivots in establishing the fruitful partnership between Juscelino Kubitschek, Oscar Niemeyer, Burle Marx and the artist Candido Portinari that would culminate in Brasília a decade later.

Inaugurated in 1943 the buildings designed by Niemeyer in Pampulha marked the start of a well-entangled Brazilian modern architecture, as an outcome of the transculturation of modernist architecture with a regional twist (See Comas, 2005). The development of an authentic Brazilian modern architecture, to which Pampulha is one of the most representative sites, was possible after two events.

The first was the *Semana de Arte Moderna* of 1922 in São Paulo, an event marking the desire to create a national art which did not simply reproduce European aesthetic standards. The Brazilian modern movement, inaugurated with the event, did not refuse European culture but defended its critical reception, while also absorbing traditional local cultures. (Fundação Municipal de Cultura de Belo Horizonte, 2014) One of the outcomes of this movement was the *Manifesto Antropofágico*. The writer Mario de Andrade coined the term *Antropofagismo*, claiming for the ingestion and digestion of external cultures (mainly European) rather than unfiltered importations.

The second was the construction of the Ministry of Health and Education headquarters in Rio de Janeiro between 1936-45, articulated by Vargas and Capanema. Through correspondence, the minister, who was well connected with the artistic vanguards, managed to invite Le Corbusier for a project consultancy, developed by a group of architects including Lucio Costa, Affonso Eduardo Reidy and the young Oscar Niemeyer (Schwartzman, Bomeny, & Costa, 2000). During his visit, the Swiss architect gave lectures and also drafted a plan for Rio de Janeiro. This is considered as decisive a moment of inflection for Brazilian modern architecture, from this moment on influenced by Le Corbusier's ideas. However, as demonstrated by Gomes and Espinoza(2009), although the influence of Le Corbusier's thoughts and the Athens Charter is undeniable, the content of South American journals, magazines and congresses reveal heterogeneous references rather than the strict adherence to a specific body of ideas (ibid, p. 33)

> Image 77: Architectural landmarks of Pampulha. Source: By author, 2006.

As it happens, Pampulha's landmarks architecture and urban disposition allude more to a Baroque inspiration than to the Athens Charter. The architectural forms designed by Niemeyer have been associated with Ouro Preto's baroque monuments for their dramatic effect, figuring objects of plain volume allowing visibility from all sides, as the automobile

> Image 78: Sketch by Oscar Niemeyer with first conception for Pampulha



1.Casino [today Museu de Arte da Pampulha]



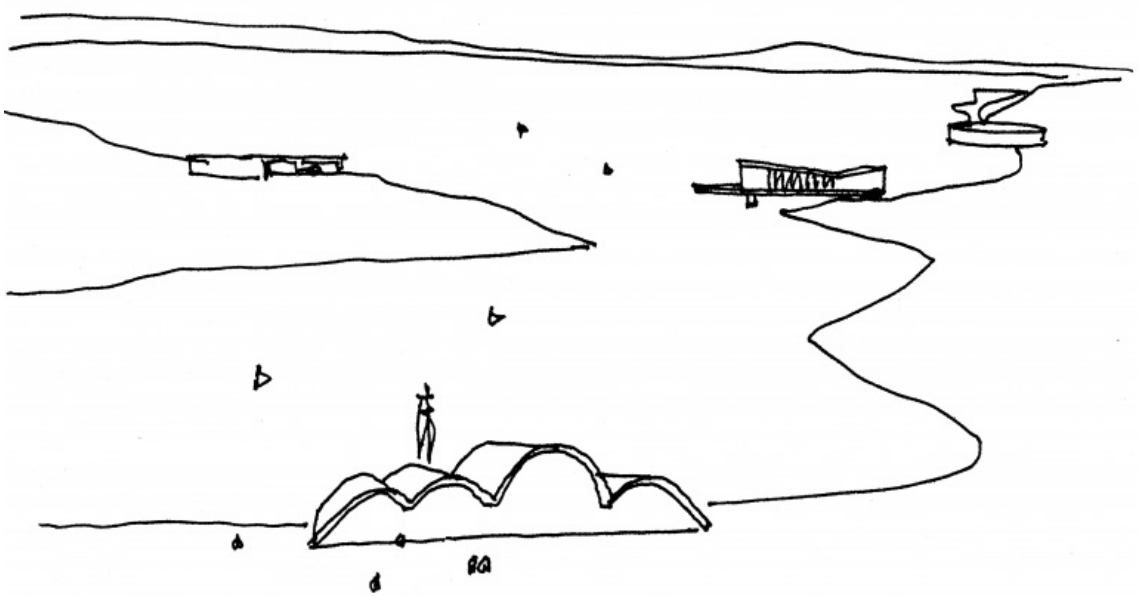
2.Casa do Baile



3.São Francisco Church



4.Yatch Club







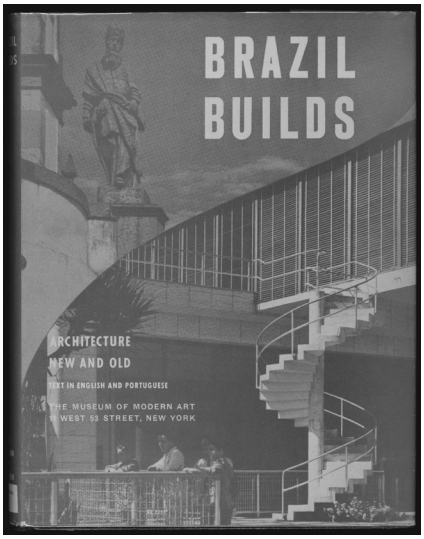
moves along the lake margins (Fundação Municipal de Cultura de Belo Horizonte, 2014). Pampulha makes the first case in which Brazilian modern architecture presents a monumentality that goes beyond functionality and, according to Pevsner, is emphatically anti-rational (Wisnik, 2004). For Jean Louis Cohen, Pampulha's works became the manifest of a free and lyric architecture (Cohen, 2012). Although Niemeyer was originally from Rio and frequently claimed that the curves of its buildings are inspired by the exuberant nature of that city, it is not a coincidence that he produced, by the curvy shoreline of Pampulha lake, an architecture so detached from the International Style, and which marked the beginning of an authentic kind of modern architecture, recognized by the use of curves. For Pevsner, Pampulha is the one to blame for Le Corbusier deviations committed at Ronchamp (Wisnik, 2004). In Cohen's analysis, Niemeyer transcends Le Corbusier's influences in the design of the Yatch Club, with its 'butterfly' roof (Cohen, 2012) (Image 77). In Brazil, the adaptation of modern architecture to tropical conditions is done through elements borrowed from local traditions such as trusses, tile panels, reflecting pools and tropical gardens. In Pampulha, and later in Brasilia, modern architecture ambitions of total art are accomplished through the integration of painting, sculpture, landscape and architecture, by combining the works of Niemeyer, the mural artist Candido Portinari and landscape architect Burle Marx. Its repercussion internationally was instant, as it was exhibited in MOMA's 1943 exhibition named *'Brazil Builds'*, while it was still under construction, and later published in the exhibition catalogue (Deckker, 2001). Interestingly, in this publication it is figured right next to Aleijadinho's[18] works in Ouro Preto[19].

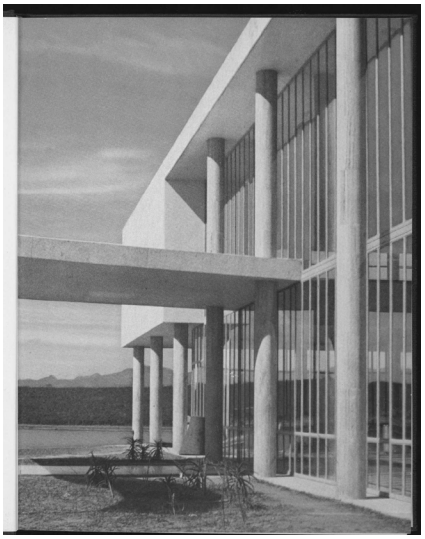
< Image 79: View of the lake from Jardim Atlântico, at the northen margins. Source: by author, 2019

According to Kubitschek's memoirs, it was himself who, while visiting the dam under construction in the company of the young and promising architect, envisioned the monumental buildings occupying each one hill at the lake curves. His conception was later drawn by Niemeyer, (Image 78) and this drawing was the only holistic conception of Pampulha ever represented visually (Kubitschek, 1976, p. 36). For him, these constructions were a fundamental part of Pampulha's urbanization project.

> *"These constructions would be erected by the Municipality, as part of the place's general urbanization plan. After, the streets would emerge. Trees would be planted. A road would be constructed, connecting Pampulha to Belo Horizonte. And, at last, as the lands there would be greatly valued, (I) would make an appeal to the owners, as to collaborate with the Municipality, constructing beautiful residences, all turned to the lake."* [20] (ibid)

< Image 80: View of the lake. On the left the Igreja São Francisco, Igrejinha, on the left Mineirão, the football stadium. At the far back, Serra do Curral. Source: by author, 2019.



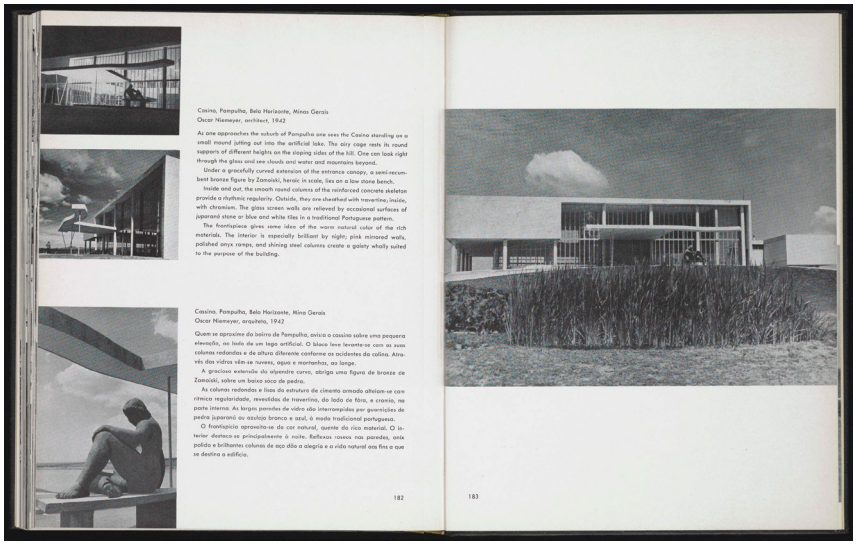


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Image 81 (left):
Cover of 'Brazil Builds: architecture new and old, 1652-1942
Source: Goodwin, 1943

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Image 82 (right):
Page of 'Brazil Builds: architecture new and old, 1652-1942' featuring Pampulha's Casino, today the Museu de Arte da Pampulha.
Source: Goodwin, 1943



Cassino, Pampulha, Belo Horizonte, Minas Gerais
Oscar Niemeyer, architect, 1942

As one approaches the suburb of Pampulha one sees the Casino standing on a small mound jutting out into the artificial lake. The airy cage rests its round supports of different heights on the sloping sides of the hill. One can look right through the glass and see clouds and water and mountains beyond.

Under a gracefully curved extension of the entrance canopy, a semi-recumbent bronze figure by Zamoiski, heroic in scale, lies on a low stone bench.

Inside and out, the smooth round columns of the reinforced concrete skeleton provide a rhythmic regularity. Outside, they are sheathed with travertine, inside, with chromium. The glass screen walls are relieved by occasional surfaces of japanned stone or blue and white tiles in a traditional Portuguese pattern.

The frontispiece gives some idea of the warm natural color of the rich materials. The interior is especially brilliant by night; pink mirrored walls, polished onyx ramps, and shining steel columns create a gaiety wholly suited to the purpose of the building.

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Cassino, Pampulha, Belo Horizonte, Minas Gerais
Oscar Niemeyer, arquiteto, 1942

Quem se aproxime do bairro de Pampulha, avista o cassino sobre uma pequena elevação, no leito de um lago artificial. O bloco leve levanta-se com as suas colunas redondas e de altura diferente conforme os acidentes da colina. Através dos vidros vêm-se nuvens, agua e montanhas, ao longe.

A gracioso extensão do vigamte curvo, abriga uma figura de bronze de Zamoiski, sobre um baixo saco de pedra.

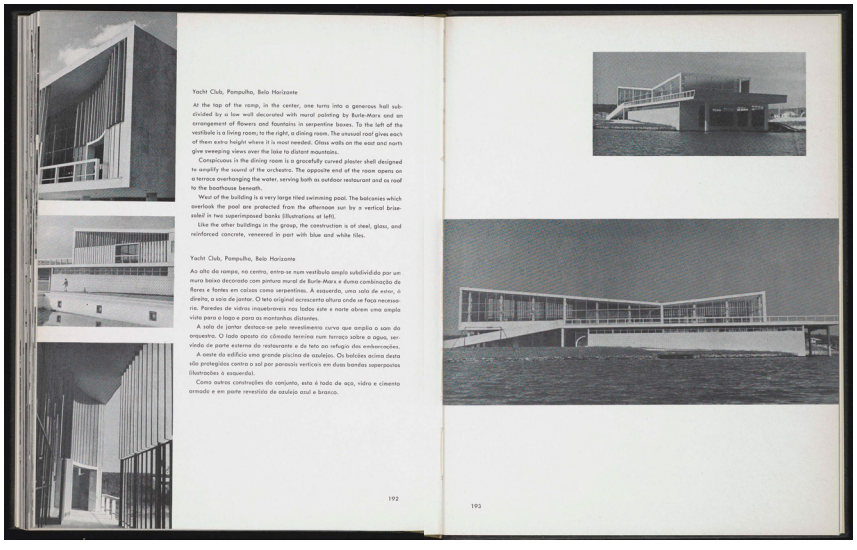
As colunas redondas e lisas da estrutura de cimento armado alteiam-se com rítmica regularidade, revestidas de travertino, do lado de fóra, e cromio, na parte interna. As largas paredes de vidro são interrompidas por guarnições de pedra japanada ou azulejo branco e azul, á moda tradicional portuguesa.

O frontispicio aproveita-se da cor natural, quente do rico material. O interior destaca-se principalmente á noite. Reflexos rosaes nas paredes, onix polido e brilhantes colunas de aço dão a alegria e a vida natural aos fins a que se destina o edificio.

183

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Image 83:
Pages of 'Brazil Builds: architecture new and old, 1652-1942' featuring Pampulha's Casino, today the Museu de Arte da Pampulha.
Source: Goodwin, 1943



Yacht Club, Pampulha, Belo Horizonte

At the top of the ramp, in the center, one turns into a generous hall subdivided by a low wall decorated with mural painting by Burle-Marx and an arrangement of flowers and fountains in serpentine boxes. To the left of the vestibule is a living room, to the right, a dining room. The unusual roof gives each of them extra height where it is most needed. Glass walls on the east and north give sweeping views over the lake to distant mountains.

Conspicuous in the dining room is a gracefully curved plaster shell designed to amplify the sound of the orchestra. The opposite end of the room opens on a terrace overhanging the water, serving both as outdoor restaurant and as roof to the boathouse beneath.

West of the building is a very large tiled swimming pool. The balconies which overlook the pool are protected from the afternoon sun by a vertical brise-soleil in two superimposed banks (Illustrations at left).

Like the other buildings in the group, the construction is of steel, glass, and reinforced concrete, veneered in part with blue and white tiles.

Yacht Club, Pampulha, Belo Horizonte

Ao alto da rampa, no centro, entra-se num vestibulo amplo subdividido por um muro baixo decorado com pintura mural de Burle-Marx e duma combinação de flores e fontes em caixas como serpentinas. À esquerda, uma sala de estar, á direita, a sala de jantar. O teto original acrescenta altura onde se faça necessaria. Paredes de vidros inquebraveis nos lados este e norte abrem uma ampla vista para o lago e para as montanhas distantes.

A sala de jantar destaca-se pelo revestimento curvo que amplia o som da orquestra. O lado oposto da cômoda termina num terraço sobre a agua, servindo de parte externa do restaurante e do teto ao refugio dos embarcações.

A oeste do edifício uma grande piscina de azulejos. Os balcões acima desta são protegidos contra o sol por parasois verticais em duas bandas superpostas (ilustrações á esquerda).

Como outras construções do conjunto, esta é toda de aço, vidro e cimento armado e em parte revestida de azulejo azul e branco.

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193

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Image 84:
Pages of 'Brazil Builds: architecture new and old, 1652-1942' featuring Pampulha's Yacht Club, today named Pampulha late Clube.
Source: Goodwin, 1943

When the mayor had the idea of transforming Pampulha's dam in a touristic attraction, he promoted a design competition for the new equipment. However, the results disappointed him since most of them followed the architectural conventional style, following the standards of the public buildings in Belo Horizonte's central areas. Some presented a variation of a Normandy style, what is probably due to the popularity of another Casino named Quitandinha, built in this style. Unhappy with the results, the mayor decided to bet, with great success one could say, on the talent of the young architect just introduced to him (ibid, p. 35). It is important to notice that the legislation guiding the constructions at Pampulha's lake shore since 1939 demanded either colonial, neo-colonial or Normandy style for the buildings (P. M. de Belo Horizonte, 1939).

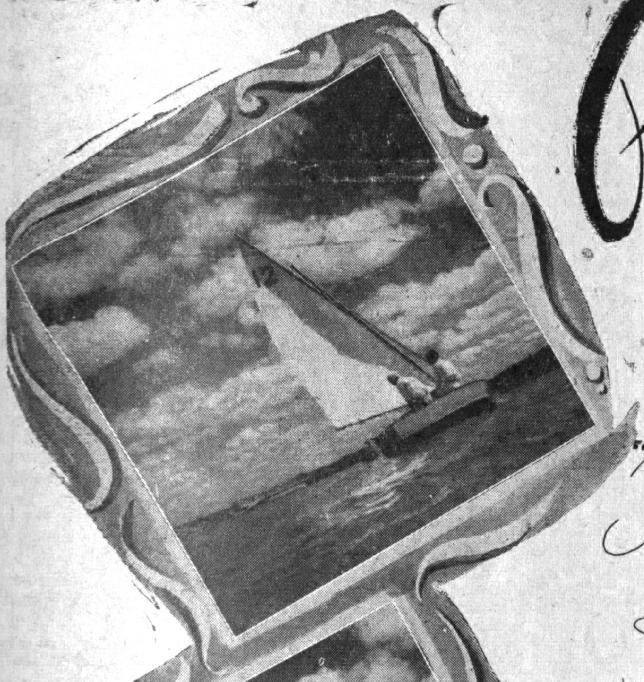
The 1939 regulation (ibid) was exceptional in Belo Horizonte not only in inaugurating new practices of urbanization (see further) while associating private and public interests in allotments, but in terms of aesthetical conception. Before Kubitschek's and Niemeyer's modern dreams, Pampulha was seen as a weekend place for rest, so the architectural style of the houses was limited to this spatial conception, not contrasting to the canonical cottage style desired. The resort canon resonates an attempt to distance Pampulha's style from the one predominant in Belo Horizonte's elite neighbourhoods. In those, the eclectic style was widely applied, being obliged to the State monuments and the functionaries' houses built by the state and also highly induced by urban legislation, as seen in the previous chapter. In the following decade, it became clear that the innovative characters of both the architecture and the urbanism of Pampulha, in local and national contexts, were allowed thanks to a certain degree of disobedience (regulation wise) to the current standards, as it also denied the cottage style by adopting the modern architecture, a hybrid form between urban and suburban housing. Here, as in also other parts of the world, modernism finds its way to develop in despite regulatory frames of urbanism and architecture that attempt to control urban development.

The equipment pieces built and inaugurated in 1943 caused a revolution not only in art and architecture but also in local costumes, especially the Casino, which was a novelty in Minas Gerais. Apart from the games room it had also a restaurant. Named 'Grill-Room', it was intensively advertised the local magazine *'Revista Bello Horizonte'* (around 1943/44) as a unique place to dine with a lake view, as Kubitschek efforts indeed included also propaganda (See Image 85). It is important to notice that, in a city that is more than 400 km away from the cost, a water body as extensive as the Lake Pampulha is quite significant in terms of landscape but also in terms

NO LAGO MAGESTOSO DA

Pampulha

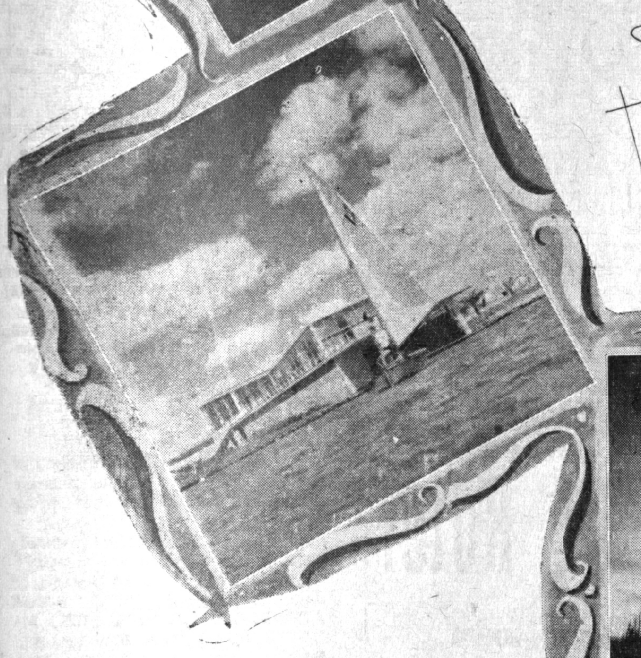
OS RESTAURANTES QUE
AS PESSÔAS DE BOM GOSTO
PREFEREM E OS TURISTAS
NÃO DISPENSAM



"Iate Golfe Club"
RESTAURANTE

"Baile"
BAR E RESTAURANTE

sob a direção de
João Boschi
um nome consagrado
na arte culinária





Telefones { IATE 2-4930
BAILE 2-4917

of habits, as it inaugurates a new practice of landscape contemplation, absent in this city until that moment. Although generally designed for leisure and tourism, each space in Pampulha was designated for a specific social layer (Ferreira, 2007). The Casino and Grill-Room was the most luxurious, having mirrored saloons and a glass dance floor. The Casa do Baile, across the lake from the Casino, was a small ballroom conceived for the more popular classes. The Yacht Club was the centre of elitist water sports such as rowing and sailing. Although access to the buildings was limited to the elites, the shoreline and lake were offered for the amusement of all Belo Horizonte's people as predicted by the previous mayor Otacilio Negrão de Lima:

> *"Around the large lake, surrounded by an avenue under construction, it is easy to predict the edification of a new and picturesque neighbourhood, destined to attract the affluence of those who, on non-working days, wish to indulge themselves in entertainment, resting from the daily labour of the city. The large water surface will serve for swimming and rowing as well as for the landing of hydroplanes. With the proximity to the aviation field, the neighbourhood of Pampulha will constitute, therefore, an 'aero-port' to excellently serve Belo Horizonte."*[21](O. N. de Lima, 1936, p. 30)

Besides simply 'nature' contemplation, the shoreline avenue gave space for car races, popular demonstrations and everyday conviviality.

The construction of Pampulha is thus emblematic for the role played by urban infrastructure and architectural landmarks during modernization. In Pampulha they act as attractors for future inhabitation and subsequently profit for allotters and future revenues for the municipality. After providing the infrastructure necessary for attracting the public – the dam with the lake, an access avenue and leisure equipment – Pampulha was officially inaugurated in 1943, ready to receive tourists and future dwellers. In 1944 a tramway connected Pampulha to the centre, facilitating public access.

Despite its instantaneous success, the social-engineered life of Niemeyer's buildings would not last as long as their architectural legacy. Due to its audacious forms, the clergy did not consecrate the church until 1959, having been preventively listed as architectural heritage in 1947 in order to avoid demolition. After causing a revolution in local customs and attracting many visitors to the region, the Casino was closed in 1946, three years after inauguration, when President Dutra forbid gambling in the country. With its closure, the Casa do Baile also lost attention (Carsalade, 2007).

<
Image 85:
Advertisement on
Revista Bello Horizonte,
1944..

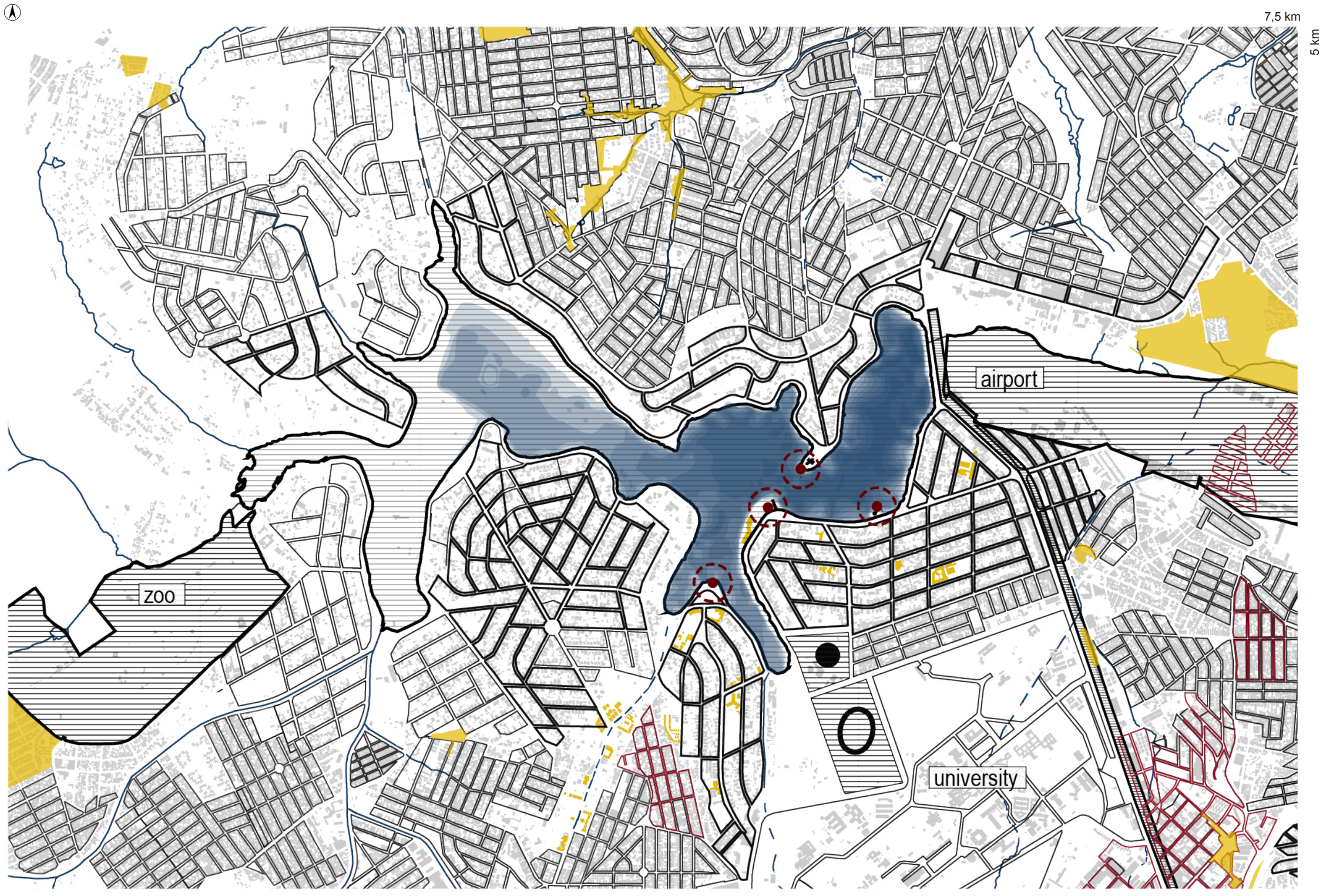
Back in the municipality in 1948 the mayor Otacilio Negrão de Lima, to whom we owe the damming of Pampulha river, saw the need to redirect the municipality's attention to Pampulha. In his annual report, he highlights the efforts in maintaining Pampulha accessible for all. In that sense, the tramlines were maintained and the bus service was extended, offering day and night public transportation. In addition, fishing, which was forbidden since the dam was inaugurated in 1938, became allowed on Sundays and holidays. The results of the permissions were soon seen, as the mayor testified: "… it is with satisfaction that we verify that this measure gave new movement to Pampulha, without damaging the existing works of art"[22] (P. M. de Belo Horizonte, 1948, p. 141). It is noticeable already in this period the tensions between the maintenance of Pampulha's architectural heritage and the public use of its infrastructure for leisure. In order to continue the incentives to sports, the municipality promoted in that year a motorcycle race, making the best use of the avenue surrounding the lake while providing incentives to sports. In the mayor words:

> *"it is necessary to recognize that the sport, especially in our country, constitutes an important contribution factor to man's integral education, in which the perfect physics is only a reflex of a well-adjusted spirit. For that reason, we are convinced of realizing a patriotic work whenever we are deviating boys from bars and game houses – fondling them to physical exercises."* [23] (ibid, p. 142)

His declaration is doubtlessly related to the recent game prohibition in the country, by president Dutra in 1946. It is also a symptom of a revival of positivist modern attitude that believed in the normalization of men through its milieu (Rabinow, 1995). In Pampulha, the improvement of men's physical and mental health, which belonged also to a populist national project under the Getúlio Vargas presidency, was done through the investment in culture, sports and leisure.

While Pampulha consolidated as a leisure destination, not many houses were built in the first moments. For decades Belo Horizonte's residents were still unsure of its success, despite Kubitschek having set the example by commissioning his weekend home to Niemeyer and Burle Marx. Moreover, the heavy investments in the area and the prospect of a lake view resulted in land speculation. By 1954 it all seemed to have come to an end with the rupture of the dam, leading to a significant mobilisation of efforts for the recovery of the area as a whole. In the second half of the decade, the dam was repaired, the church was restored and consecrated, and the Casino building was converted in to an art museum, the Museu

> Image 86: The different tissues and equipment in Pampulha: pre-existing tissues, new allotments from 1943 and State investments The exceptions are the informal settlements (in 1996) and the identified according to analysis in Images 100 and 101. Source: by author, 2019. Data from Prodabel.

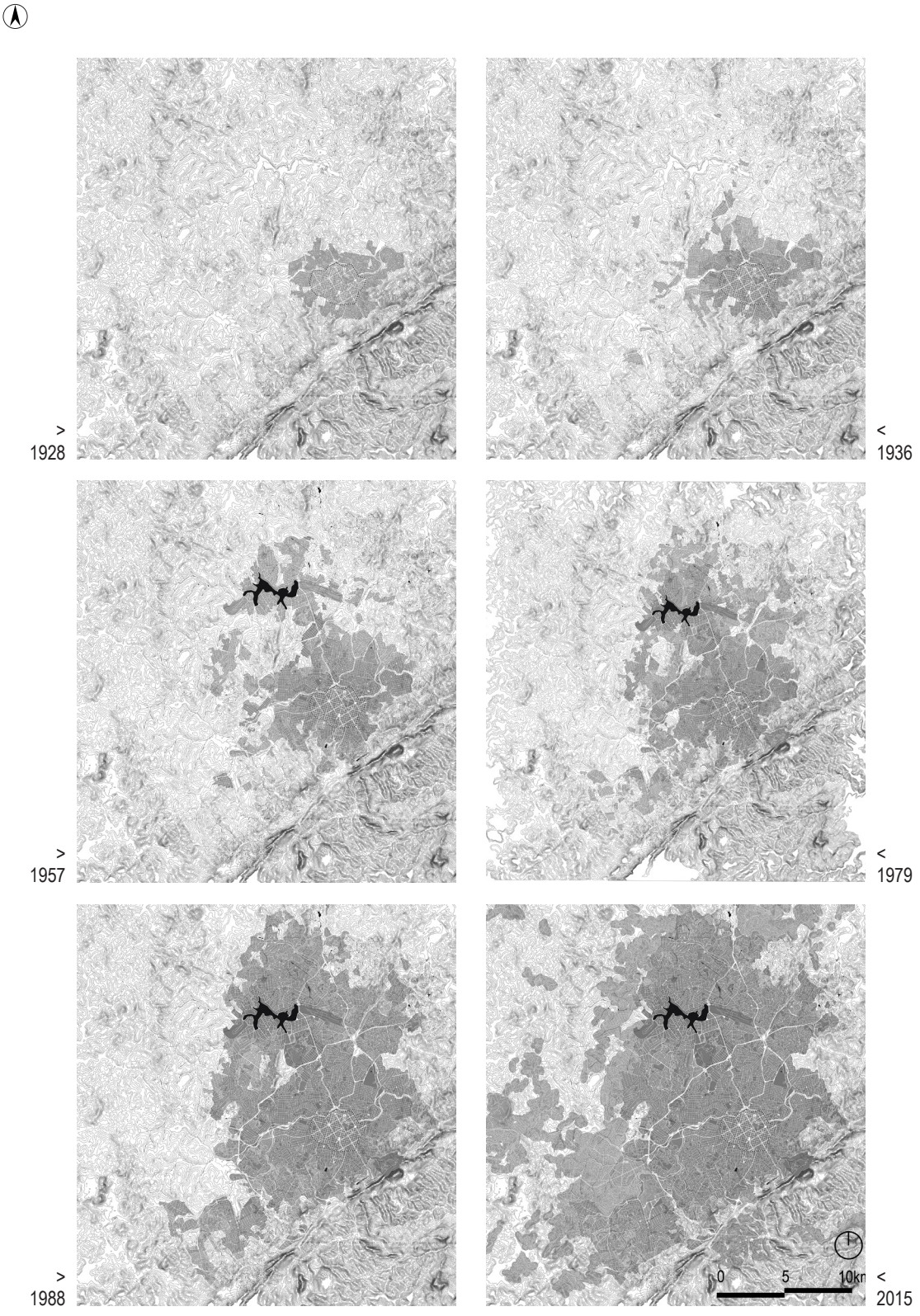

7,5 km
5 km
airport
ZOO
university
State infrastructure
pre-existing occupation
first re. allotments
other allotments
exceptions
lake
landmarks

1:25.000

de Arte da Pampulha in 1957 (Carsalade, 2007). Already in its first decade of existence, Pampulha presented its first physical and conceptual fissures, when its success was halted by programmatic and engineering cracks. The strategies laid out in its initial plans were eventually forced into a chain of adaptations that were temporary and dynamic, searching for equilibrium.

Despite the challenges of the first years, the State continued to invest in Pampulha in the subsequent decades, reaffirming its leisure character. The municipal Zoo was inaugurated in 1959 on a piece of land expropriated since the construction of the dam, where Kubitschek and Niemeyer had predicted a golf course and a hunting park. The Federal University, initially planned to occupy a large area inside the city's original urban zone was constructed in a farm expropriated in 1945, the Fazenda Dalva, having its first building inaugurated in 1963. In its proximities, a large football stadium was inaugurated in 1965, the Estádio Governador Magalhães Pinto, popularly known as Mineirão. In the following years the University sports centre was installed, as well as two large training centres for two prominent local football teams. Other large areas around the lake were donated by the municipality to private clubs, especially in the northern margin (A. P. da C. de Belo Horizonte, n.d.).

Despite the many investments from the 1940s onwards, only by the late 1970s Pampulha started to consolidate as a residential landscape, besides recreational. The enclaves along the lake transformed from weekend-homes to permanent residence, while other middle-class neighbourhoods emerged, together with informal settlements, spreading the urban tissue towards the whole northern region of the municipality. The intense occupation of valleys of rivers that feed the lake resulted in their severe pollution, a serious issue already in the 1980s and still a constant challenge. Reflecting on the use of state infrastructure in national modernization projects Almandoz has observed that "despite (of) their impact on the urban skyline and landscape, these modern icons could not hide the emergence of squatter settlements." (2014) For Pampulha, this meant that the construction of architectural landmarks and enclaved recreation-oriented settlements goes hand in hand with the emergence of other urban forms, such as low-income neighbourhoods and informal settlements in its surroundings, as also happened in Belo Horizonte's foundational scheme.


> 1928
< 1936
> 1957
< 1979
> 1988
< 2015
0
5
10km

3.3. Suburban Constellations

This section will present Pampulha's urban development as a constellation of regulations, allotments, constructions and further regulations, as a continuation of Belo Horizonte's suburban expansion, repeating some of its practices while inaugurating new ones.

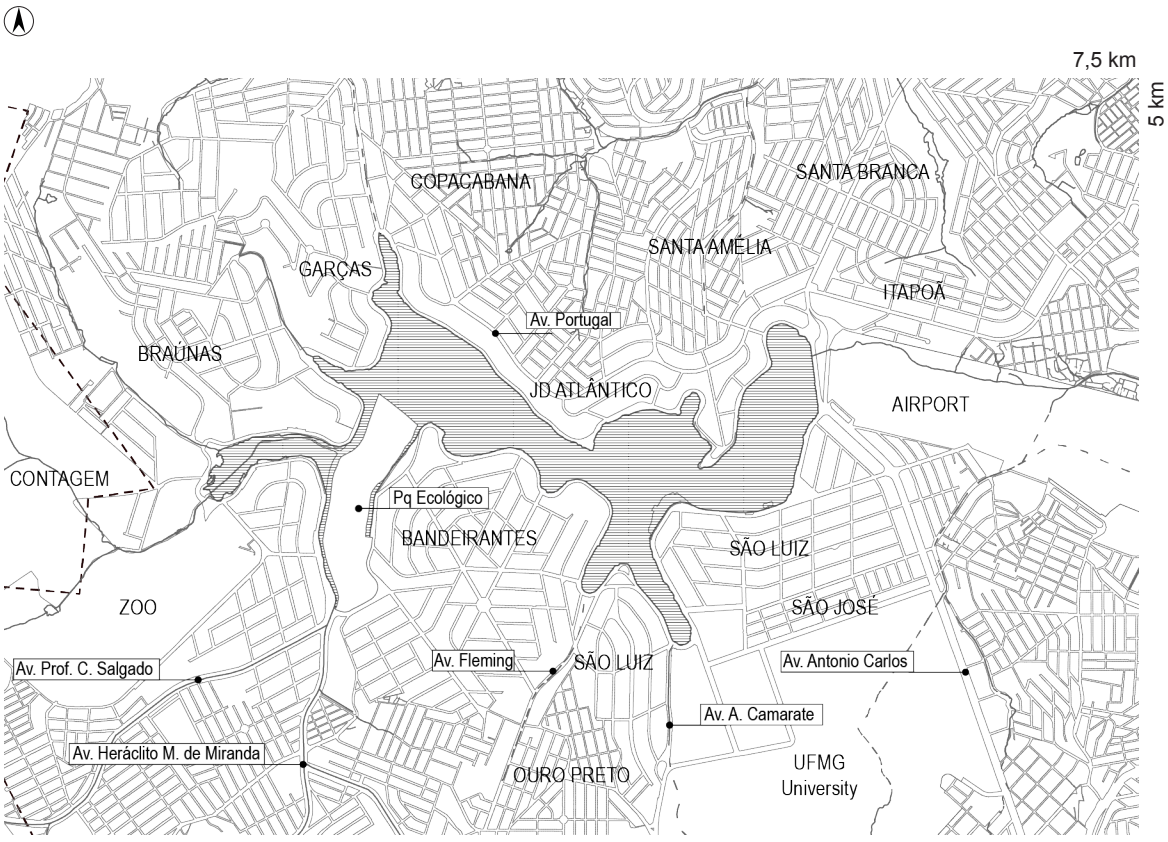
Once again in Belo Horizonte's history, ambitious urban projects implying extensive ground and water manipulations were juxtaposed by punctual monumentalities and an assemblage of laws and special rules to guide its settlement. This section looks into Pampulha's development as a layering of operations on the territory, which started with a first strong impulse with the construction of the dam and the instalment of its first infrastructure. It addresses that while stressing the features that have made Pampulha inherently different from Belo Horizonte's suburban growth, while also repeating some ifs foundational learned practices, which persist in the city's history like involuntary memories. Here the episode is expanded in both directions, with the exposition of the events before and after the construction of the dam and the inauguration of Niemeyer's buildings, usually considered as the beginning of Pampulha. This explains Pampulha as the continuation of a process of suburbanization, however presenting its own peculiarities. It sees Pampulha as the result of constellation of things and actions in space, in the partitioning of its territory, in the creation and regulation of objects and objectified space, that is, in Pampulha's materiality and the social relations embedded within. In this constellation, not only the objects are important but also the social relations established between then.

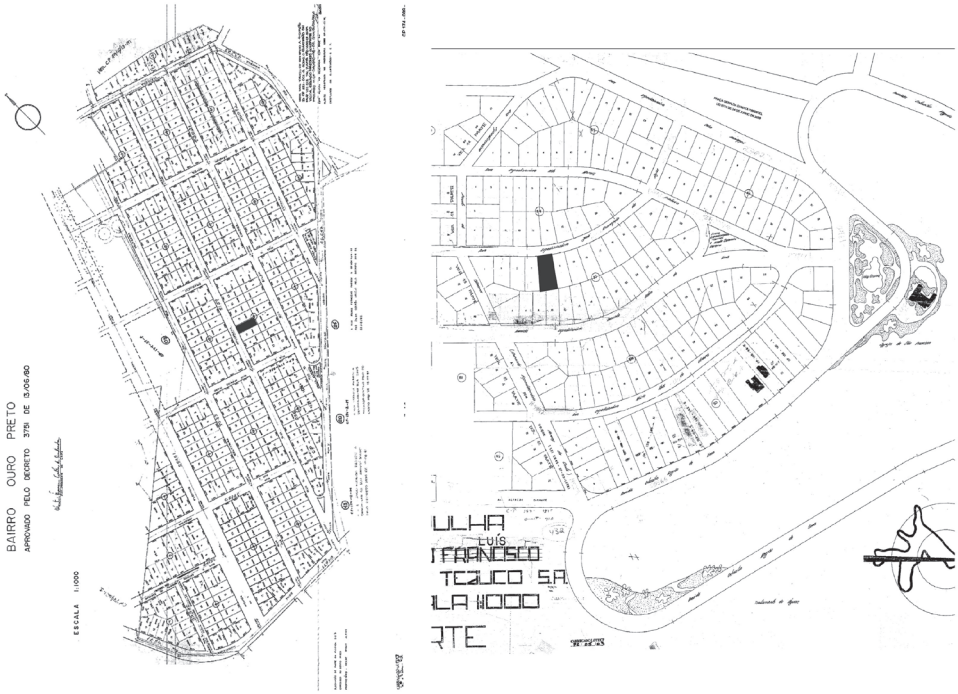
3.3.1. Belo Horizonte's suburban expansion

As exposed in the first episode, part of Belo Horizonte's first suburban development was inherently part of the inaugural scheme and subsequently highly induced by the juxtaposition of state actions. However, aside from the State implemented agricultural colonies, this initial suburban occupation was done massively through a constellation of private allotments of small farms belonging to the rural zone. The allotment of farms expanded time after time the city limits.

After the implementation of the first proletarian neighbourhoods, the *'Villas Operárias'* outside the city core, many other workers' villages materialized in the greenbelt of Belo Horizonte from the 1920s onwards, after ineffective efforts to populate the already infrastructured areas and to

<
Image 87:
Historical expansion of Belo Horizonte's urbanized areas. Source: by author. Data from cadastral maps available at Prodabel and APM.


7,5 km
5 km
COPACABANA
SANTA BRANCA
SANTA AMÉLIA
GARÇAS
ITAPOÃ
Av. Portugal
BRAÚNAS
JD ATLÂNTICO
AIRPORT
CONTAGEM
Pq Ecológico
BANDEIRANTES
SÃO LUIZ
ZOO
SÃO JOSÉ
Av. Prof. C. Salgado
Av. Fleming
SÃO LUIZ
Av. Antonio Carlos
Av. A. Camarate
Av. Heráclito M. de Miranda
OURO PRETO
UFMG
University


BAIRRO OURO PRETO
APROVADO PELO DECRETO 3751 DE 13-06-60
ESCALA 1:1000

control informal settlement expansion. In 1919 a special regulation allowed the government to create *Villas Operárias*, aiming to host those who had recently been evicted from informal settlements (P. M. de Belo Horizonte, 1919). At this point, the horizontal expansion at its outskirts was already out of control. It occurred mainly in the form of these allotments, named *villas*[24], consisting of (legal or illegal) subdivision, urbanization and commercialisation of farmland by private parties, inaugurating a pattern of patched urbanization spreading out from Belo Horizonte's foundational grid.

As exposed in the previous chapter, this private urbanization pattern emerges as a consequence of the inaccessibility of urban or suburban plots for the large migrating population. Local landowners and other investors saw the opportunity of making profitable business with the commercialization of plots or small houses for the poor. Maximum profit with minimum expenditure seems the recurrent strategy.

< Image 88: Key Map of Pampulha with neighborhoods and main avenues. Source: by author, 2019, based on data from Prodabel.

Already in the 1930s one of Belo Horizonte's administration's main concerns was the excessive number of *'villas'* extending the populated area of the city. Between 1924 and 1930, 53 new neighbourhoods and villages were approved by the municipality (P. M. de Belo Horizonte, 1937b). This number is, however, probably not a reflect of the urbanization in this specific period but of the great effort done to update the city cadastre, finalized and published in 1928-29, which resulted in the approval and formalization of already existing but till then illegal allotments.

The municipal taxes recorded in 1926 a total of 7904 buildings: 3266 in the urban zone, 2366 in the suburban, 1700 in the former colonies and 572 in the outskirts. Only 41% of buildings were, therefore, urban. The number of provisional homes in the workers zone and the military areas exceed 10.000, besides the informal shacks spread around the city. The number of houses was estimated to around 12.000 with a population of 100.000 approximately. (Mensagem apresentada por Fernando de Mello Vianna, Presidente do Estado de Minas Geraes, 1926)

From that moment onwards, many laws and decrees were launched in the attempt of 'stopping' the sprawl and avoiding land speculation, for the largest part with little impact. While the strictly regulated occupation of urban plots was eased, difficulties were imposed to new allotments outside the urban zone. The decree 54 of November 1935, which guided the urban allotments in Belo Horizonte, determined, amongst others, that earthworks, paving and complementary works would be a responsibility of the allotters (P. M. de Belo Horizonte, 1935). Before that, suburban plots

< Image 89: Comparison between plot size in São Luiz and Ouro Preto neighbourhoods. Source, by author, 2016, with cadastral plans available at www.plantasonline.pbh.gov.br

were subdivided and sold without proper infrastructure, an obligation left for the municipality, and usually done only after the inhabitants urged for public services and transport. The inhabitant's mobilization normally included forming associations and pressuring the municipality. This was the case of the first suburban neighbourhoods such as Calafate, Santa Efigênia and Floresta (the last two formally belonging to the urban zone), in which associations were claiming already in 1916 a minimum infrastructure, as its inhabitants were paying municipal taxes. (Le-Ven, 1977, p. 89). The large number of new neighbourhoods made the completion of infrastructure and provision of services by the municipality difficult. The result was that the population was living in large portions of the emerging city in extremely precarious conditions. With the new law, plots could not be commercialized before the infrastructure was completed, a strategy intended to avoid mass allotments as well as to diminish the municipality's financial burden.

Those allotments were thus entirely managed by private enterprise. The patches emulated the grid model, trying as much as possible to belong to the city, but usually linked to it only through a connecting road. No centrality, commerce, services nor public spaces where on the development agenda. The plots were the smallest possible as to make them affordable for workers excluded from the elite-dominated urban zone. Although Pampulha has also developed mostly under private entrepreneurship, its formation was inherently different from the many workers' villages that appeared in the immediate surroundings of the city's foundational core. It was completely detached from the existing fabric, jumping a large gap of farming areas. This isolation was possible only because its implementation included the construction of a large access avenue. Resonating the foundational plan, its layout also disregarded pre-existing settlements. Yet, different from its predecessor, topography and street morphology were part of the same design strategy, as streets follow topography lines and neighbourhoods are organized according to the shape of the lake shore.

3.3.2. Pampulha's allotments

At the municipal and State's public archives various documents give testimony to the construction of the Pampulha dam, as it was a massive engineering intervention. However, no comprehensive design plan representing the reservoir and bordering neighbourhoods, as a preconceived unified form, could be found. However, besides the mayors' annual reports[25], which includes reports of the construction as well as photographs, detailed maps elaborated by the Secretary of Agriculture

show the topography, hydrology, surface-use and urbanization in 1936 and 1940 at the city scale [26]. Those helped to understand the morphological changes following the dam construction.

As in the previous episode, the exercises of analysis and re-mapping of archival cartography supported by texts allowed, through comparison, new understandings on the profound landscape transformations in Belo Horizonte's suburbs. The 1936 map, developed by the State's secretary of agriculture, (redrawn in Image 65) depicts urbanised areas with a heterogeneous puzzle of grid patches. Alternatively represented in full or dotted lines, their representation is ambiguous, leaving, in a certain way, open to interpretation what was the real city or its imagined future. A comparison with later maps indicates that the dotted lines correspond to planned but not yet implemented allotments. The inconsistencies between this and later maps reveal unrealized projects. A patchwork of hatches indicates intensive farming, while small pre-existing villages also figures, detached from Belo Horizonte's daily life (See Image 65).

At Pampulha, the 1940 map displays a projection of a pioneer neighbourhood to be constructed next to the dam, two years before its construction was completed. Its timing is however simultaneous to the mayor's announcement of the idea of a picturesque leisure neighbourhood (see more details further). The first lakeshore neighbourhoods were only implemented after 1943, after the completion of the dam and the formation of the lake. Its shape ended up being different from the one projected in 1936 but is still of course similar.

The new urban materiality of Pampulha's lakeshore was not only determined by the strong figure imposed by the lake and its tributary creeks but also by the urban parameters that preventively regulated its materialization. To ensure that the shoreline would consist primarily of weekend homes (inhabited by the local elite), a municipal decree of 1939 (P. M. de Belo Horizonte, 1939) determined the area's legal and spatial exceptionality. Diverging from the rules guiding land subdivision since 1935, it determined special development conditions for future shoreline allotments within a distance of 500 metres from the lake border.

Firstly, according to the decree, the Municipality was to elaborate projects, measurements and topographical levelling under request - and of course payment - of the owners. As well as the foundational plan, Pampulha makes an exceptional case, as a State-led urbanization in a scenario of privatized urbanism in which the private land allotment is the typical *modus operandi*. Social segregation was secured by establishing a minimum






plot size of 1000m^2 with a 20 meter-frontage, almost three-fold the plot area practiced in the rest of the city. Also, a pre-zoning prescribed housing and commerce areas and forbid industrial use within the shoreline strip, decades before the city's first zoning law was approved, in 1976.

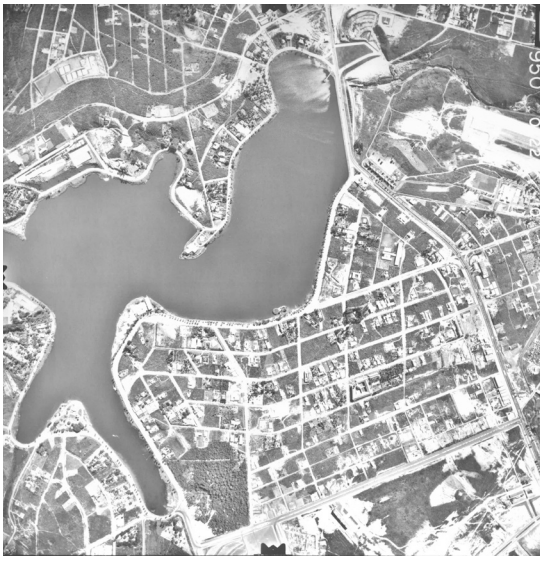
The project of a new neighbourhood in Pampulha went in the opposite direction of Lincoln Continentino's recommendations. In his text written in 1935 (Continentino, 1937), which defended the necessity of an urbanistic plan for Belo Horizonte, he recommends that the approval of new allotments should wait until a city comprehensive *plano de urbanismo* was developed, avoiding future inconveniences. This plan was developed at the same time as Pampulha's lake was under construction and published in 1941, two years before the first shoreline allotments were approved. Amongst other guidelines, Continentino's 1941 plan advocated for the consolidation and densification of Belo Horizonte's core, advising the municipality to disapprove new allotment projects outside the current perimeter (Aguiar, 2006). The law of 1935, regulating the allotment of land in Belo Horiozonte, is consonant with this diagnosis and to the mayor's claims, aiming to discourage new allotments.

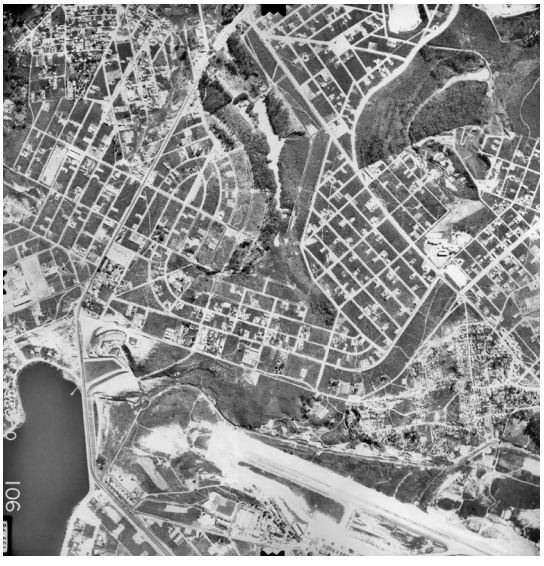
Nonetheless, as argued before, Pampulha was not just another allotment. It stood outside the general criticism on the dominant urban expansion pattern seen in Belo Horizonte. In Continentino's opinion, the existing villas around the Capital were truthful attacks to the most trivial rules of urbanism. The placement of straight streets disregarding topography resulted in large earth movements of land and absurd ramps. The minimal plot dimensions, 300m^2, did not allow orchard plantation or small cultures, while also not allowing the installation of water wells and septic tanks within safe distances in areas devoid of urban services (Continentino, 1937). In that regard, Pampulha's lakeshore allotments were a positive exception. Its parameters, defined by the municipality, are in accordance with Continentino's opinions, with streets following the topography and plots with sufficient area for orchards which could characterize it as a suburban occupation.

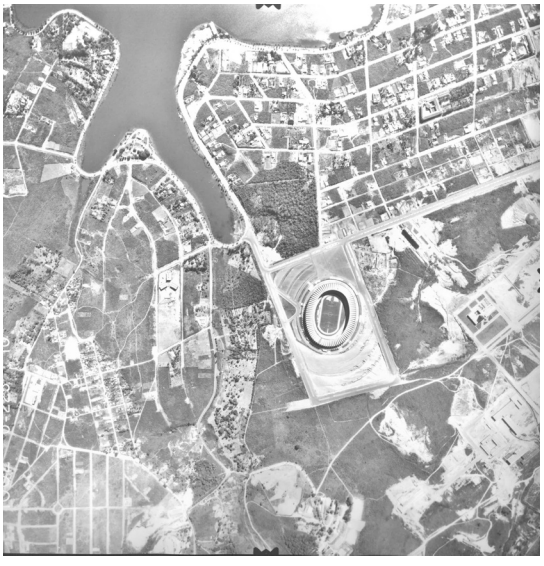
< Image 90: Aerial pictures around Pampulha lake, 1953 Source: APCBH

While the regulation of 1935 demanded that no allotment would be approved without the accompanying infrastructure plans and that no plots would be sold without their execution, Pampulha's shoreline special regulations of 1939 went further. Its first article determined that: "The projects, surveys and levelling for the subdivision of lands marginal to Pampulha's dam, within a strip of five hundred meters above Avenida Getulio Vargas will be done by the Municipality, under the request of owners (…)" (Belo Horizonte, 1939).[27] Additionally, it adds "Designed









by the Municipality, the streets and the subdivision of plots, the plan will be delivered to the owner for completion with the prescriptions indicated on the 4th article of the mentioned decree [the Decree 54 of 1935].(…)"[28] (Belo Horizonte, 1939) Lastly, regarding the execution, the 6th Article decrees that the Municipality will charge the owners (80 *réis* per square meter) for the services and projects, including the water distribution, sewage and lightning infrastructures, paving parks and gardens systems, sidewalks and public areas, as located on and prescribed by the plans of these projects (ibid).

Hence, aiming to guarantee the urban quality of Pampulha's shoreline settlements, the Municipality would take total control of its urban development, designing and executing the services, provisions and infrastructures, but it would not finance it. By means of the decree, landowners would request the municipality urban development services, pay according to the allotment size and accumulate profit of plot sales. On the other hand, the municipality gained with the increase of tax revenue.

In the context of the very recently installed dictatorship, in 1937, and seen the lack of control of Belo Horizonte's urbanization in the previous decades, the decree established a way in which to guide the new neighbourhood formation, which was, after all, a visionary idea of previous administrators.

In order to explain its materialization process, I have constructed the timeline of Pampulha's layered development throughout five decades, by combining, organizing and retracting private allotment approval plans, available at municipal archives[29], and the documented State investments, that might have been punctual, but were not less massive. Although the first allotments surrounding the lake were approved in fragments, following land property divisions, their approved plan contains the stamp and signature of the then mayor Kubitschek in 1943, the same year of Niemeyer's building inauguration. If patched together, they form a (sort of) cohesive urban form. They were, after all, all conceived and drawn by the municipal planning administration. Having borders defined by ownership, the morphology of each piece is determined by geography: they more or less try to follow a topographic logic leaving un-urbanized, un-subdivided fragments along tributaries and property limits. Those were built up later, haphazardly.

After the first shoreline neighbourhoods, Bandeirantes, São Luiz, São Francisco, Braúnas and Jardim Atlântico hab been implemented, the investments in the area stimulated the allotment of other areas in the subsequent decades. Those more distant from the lake and therefore with

<
Image 91:
Aerial pictures around Pampulha lake, 1967
Source: APCBH

smaller blocks and plots. As they were beyond the 500-meter shoreline defined by the 1939 decree they didn't have to conform to the same restrictive minimum plot size. These areas remained mostly empty for at least a decade. (See Images 90 and 91)

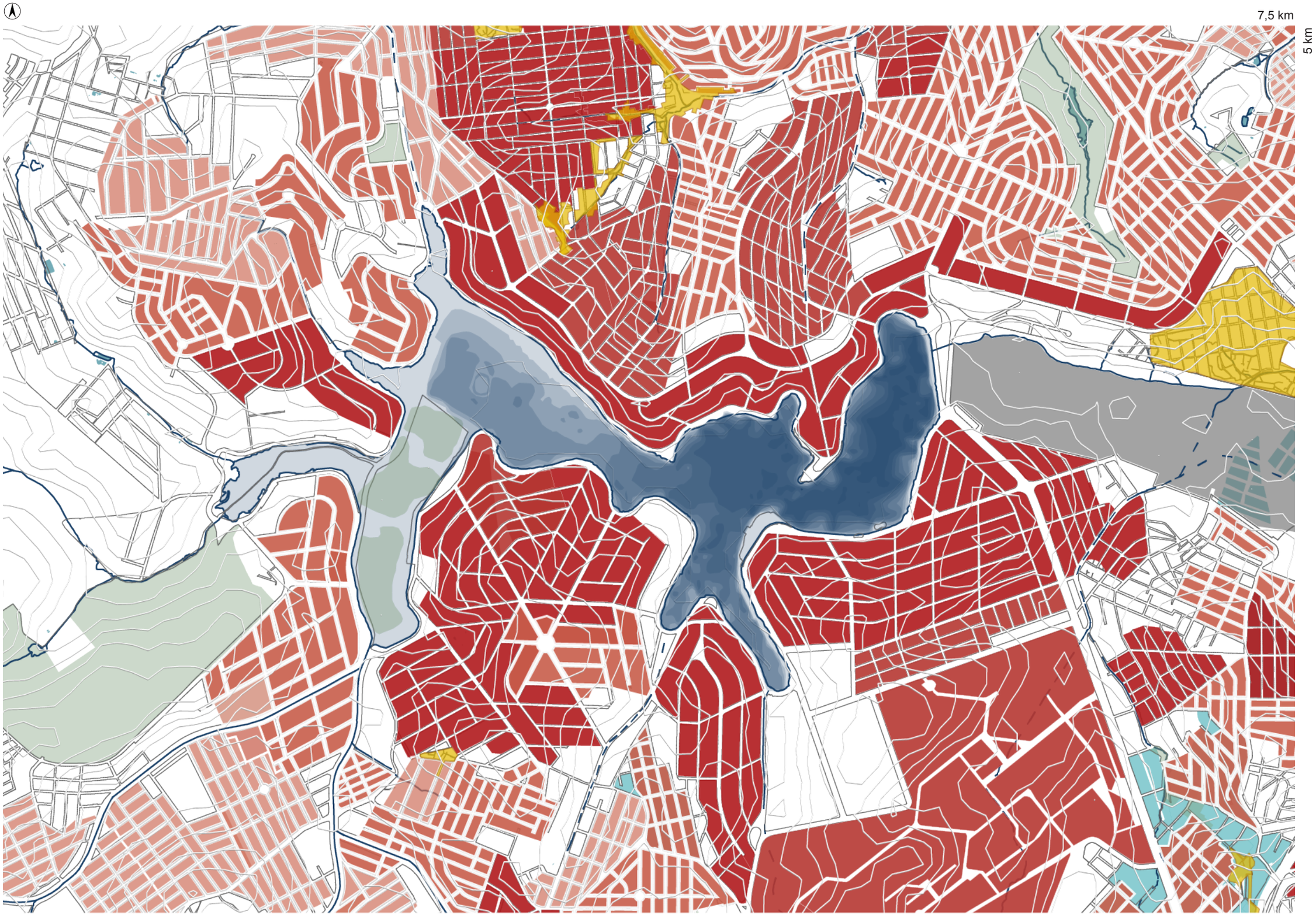
The 1970s were a period of great economic expansion in Brazil. Fast urbanization followed in the wake of this, a lot in the form of massive suburban sprawl (see next chapter for more details). The imminence of the approval of Belo Horizonte's first zoning law (P. de Belo Horizonte, 1976), as well as the publication of Plambel's metropolitan plan in the same decade, instigated the consolidation of a second ring of occupation around the reservoir composed by a patchwork of smaller allotments targeting middle-class groups with plots of around 360 m^2. From this moment on, Pampulha started slowly to mutate from an isolated wealthy residential enclave to a more diverse and cohesive urban realm. It was the beginning of the meeting, physical as well as social, between the pre-existing settlements of Pampulha Velha and the urban sprawl of Belo Horizonte, coming in the centre-north direction with the new Pampulha, and the spark of its social and physical hybridization. As Belo Horizonte's sprawl meets Pampulha's expansion it starts losing its character of a place aside, a pristine holiday space embedded in the countryside.

3.3.3. Spatial results

The gradual occupation not only in the new allotments but mainly in the gaps left in-between those has allowed the insertion of other typologies, uses and diverse social groups, once the first lakeshore allotments and most of the following ones were exclusively residential. Avenida Flemming can be cited here as an example of this phenomena (See Image 100) The avenue was only implemented in the 1990s, after the canalisation of a creek at its axis. Remaining for a long time in a transitional state, the avenue is still under slow occupation by diverse uses such as restaurants, student housing, social housing, schools and sports centres. Lately, it has been advertised as Pampulha's centre of social life, and this in a suburban area that for decades known as being 'centre-less'. Pampulha keeps depending indeed largely on the traditional city centre for commerce and, surprisingly, cultural activities.

The mapping of non-residential uses in some areas has revealed that they are located mostly in the intersections between the residential allotments, along roads that have consolidated as commercial paths after the establishment of these allotments. As some of these were already occupied before the zoning

> Image 92: Timeline of allotments in Pampulha from the 1940s until the 1980s.Date for informal settlements is 1996. Since then many have been removed or legalized. Source, by author, 2019 with data from Prodabel and www.plantasonline.pbh.gov.br


7,5 km
5 km
pre-existing
1940
1950
1970
1980
informal
parks
equipment
open water
canalized water
1:25.000

law of 1976, it is not this zoning that determined uses but other logics. As the allotments are designed as self-contained residential only spaces, without places of urbanity, centrality or activity, these areas in between have consolidated as passage ways and access roads connecting neighbourhoods and the main access avenues to the lake. These paths are, of course, prone to the development of commerce, especially when this is expelled from the patches centres towards their borders. This is the case of a continuous path made by Rua Conceição do Mato Dentro, and Rua Mantena between two different allotments in the Ouro Preto neighbourhood. The phenomena also occur at Avenida Portugal, at the edge of one of the pioneer shoreline neighbourhood Jardim Atlântico. The different allotments along Avenida Alfredo Camarate, bordering a university area with part of the São Luiz neighbourhood has also allowed large scale equipment and commercial use. The avenue is, not coincidently, running along one of the creeks feeding the Pampulha lake, the same situation found at Avenida Fleming (See Image 101). The subsequent zoning laws, in 1976, 1996, 2000, 2005 and 2010 have first acknowledged and then reinforced this tendency of absorbing uses that have been excluded from the residential enclaves, as exposed further (See Images 102, 103 and 104).

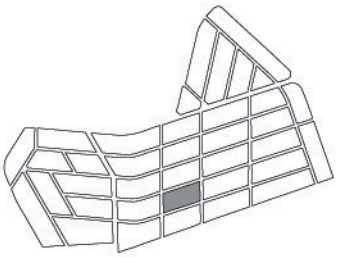
On the other hand, the pioneer elite neighbourhoods such as São Luiz and Bandeirantes have been frozen by successive restricting regulations under the flags of heritage and environmental protection (Carsalade 2007) suffering today from abandonment, security and identity crisis. Although all dating from the same period, the pioneer settlements have evolved with different personalities which are related to their size, position and history of occupation[30].

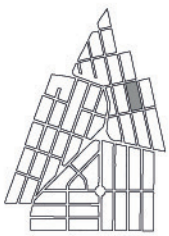
São Luiz[31], the very first neighbourhood to be implemented, received, right at its beginning, a large school which has contributed to bring some dynamism to an otherwise almost exclusively residential area. It was also the one where the Casa do Baile and the Yacht club were installed, guaranteeing its touristic attractiveness. It is also very close to the football stadium and to the Igrejinha, at the other part of São Luiz across one of the lake's branches. This is a small conned-shaped allotment having the church and a Luna park at the tip formed by the lake, making its northern edge. It is bordered by Avenida Flemming at its western side, the sports stadiums to the east and the pre-Pampulha settlement, Vila Recreio, which became part of the Bairro Ouro Preto. Being surrounded by differences, São Luiz results in a self-contained neighbourhood that nevertheless maintains some sort of liveliness due to the presence of the touristic attractions as well as a public school. The Bairro São José, a mixed–use area occupying a thin strip

SÃO LUIZ

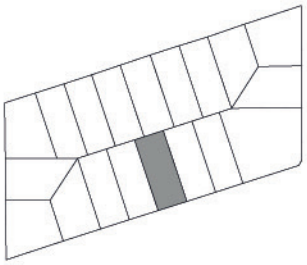
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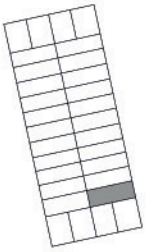
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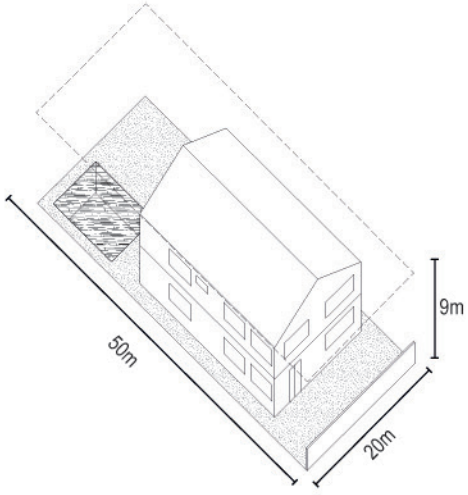


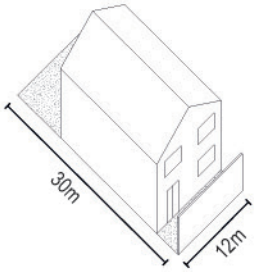
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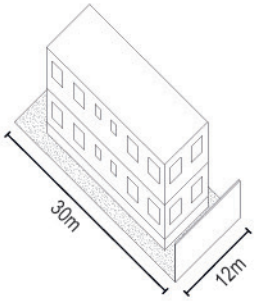




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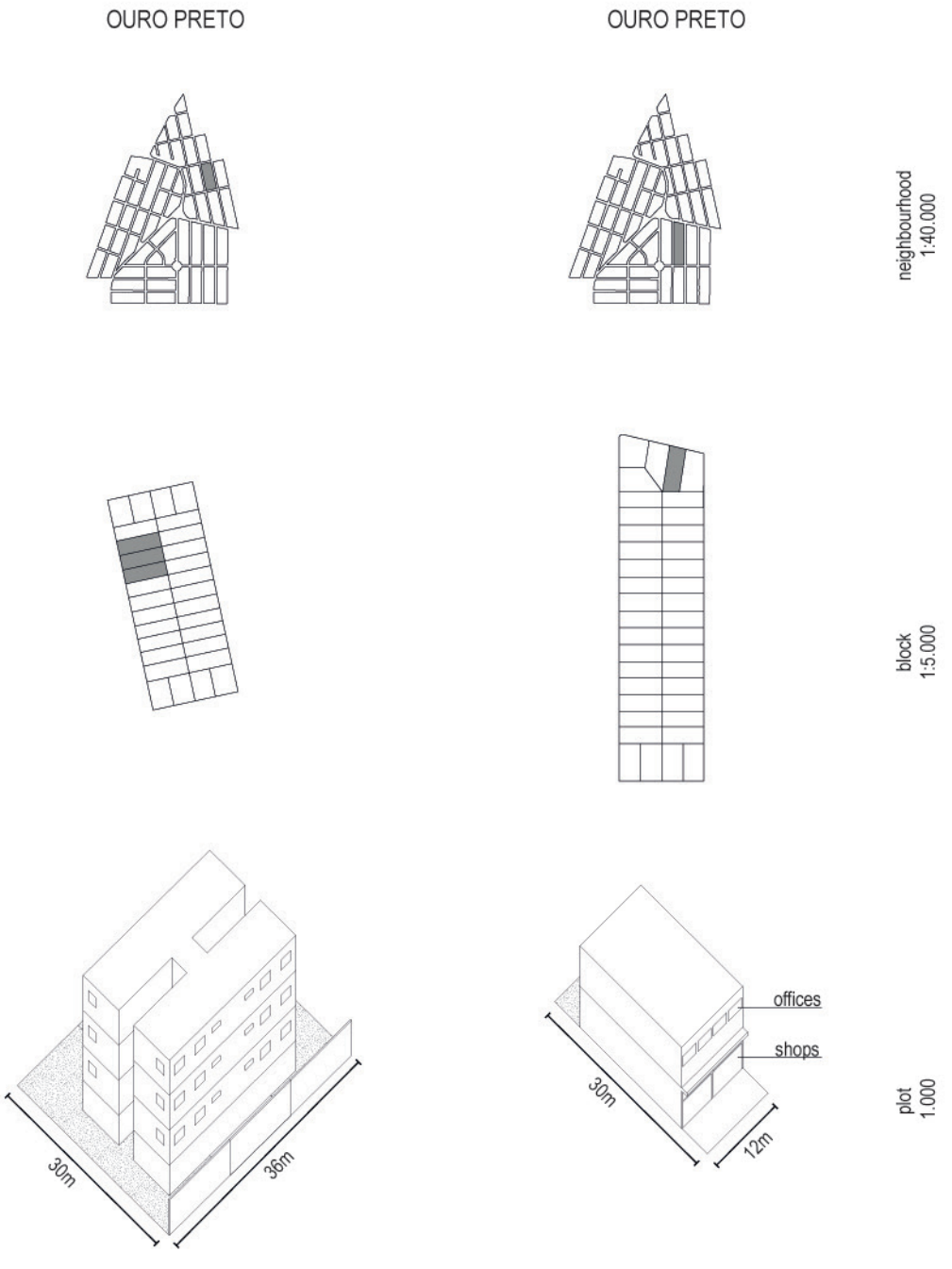


Image 93:
Scheme of diferent tissues, plot sizes and typologies of Pampulha.
Source: by author, 2019 with data from Prodabel



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Image 94:
Typical house in São Luiz neighborhood. Modernist style with visual permeability in front gates.
Source: by author, 2016.



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Image 95:
Typical house in Bandeirantes neighborhood. Style characteristic of the 1970s - 1980s, large gardens, distance from street.
Source: by author, 2016.



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Image 96:
Typical occupation on commercial streets in Bairro Ouro Preto and others with mixed use.
Source: by author, 2016.

between São Luiz and the university works as the stronger centrality for this area, although it is located at one of its edges. The proximity with the university and the stadiums and the non-restriction of uses have helped to boost its commercial and services character (Image 101).

The first sections of Bairro Bandeirantes were approved in 1943, but its occupation was slow, as it was more distant from the monuments installed and the access through Avenida Pampulha. Its cadastre plans present a superimposition of different plans from different dates, indicating the gradual implementation that gives space for alterations, and indicating problems with implementation and land ownership. The interviewed dwellers confirmed that some of the streets were only paved in the 1970s, as the aerial pictures of 1963 can also confirm. (Images 90 and 91). This neighbourhood also did not receive any of the equipment installed by Kubitschek, offering no attraction for immediate occupation. In fact, even though the restrictive regulations allowed local institutional use, Bandeirantes did not receive any. Today, still without any use that is not residential, its streets lack any level of urbanity, event at the lakeshore. Not coincidentally, it is the area that suffers most from the security paranoia, increasing the height of its walls and the private security apparatus. Although lately the dwellers of São Luiz have also complained about the fear of crime[32], the differences between those neighbourhoods are clear. While in São Luiz most of its houses still have see-through fences showing off their beautiful gardens and modern façades – and due to the fact that many are modernist listed buildings – in Bandeirantes the streets are sided with long and high walls and security apparatus of cameras and guarding posts.

Lastly, the bairro Jardim Atlântico, north of the lake, was approved also in 1943 as one thin strip occupying a very steep topography in most blocks facing the lake. This condition jeopardized its formation as a residential neighbourhood, as it was also very isolated from the city's main access. Although today many houses exist, this lake side is characterized by the presence of clubs occupying large areas overlooking the lake, like the Pampulha Iate Clube, already inaugurated in 1961.

The cadastre map (redrawn in Image 66) and aerial pictures of 1953 (Image 90) shows a very sparse occupation in all new neighbourhoods around Pampulha's lake, while some were still incomplete in terms of infrastructural works. Most occupation happened by the lake, more concentrated around the architectural landmarks installed. In these records, it is also possible to see the other occupied areas which had an independent life from the modern Pampulha, in a complete detached urban pattern and rationality.



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Image 97:
Commercial space at Avenida Fleming.
Source: by author, 2016.



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Image 98:
At the background a large house at the lake shore. In the foreground one of the canalized tributaries to Lake Pampulha.
Source: by author, 2019

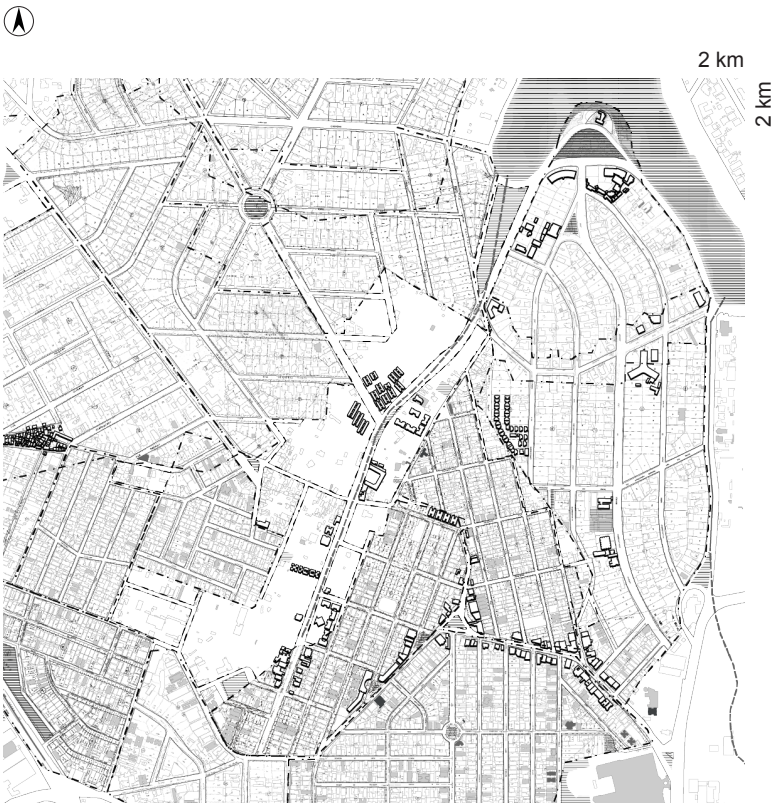


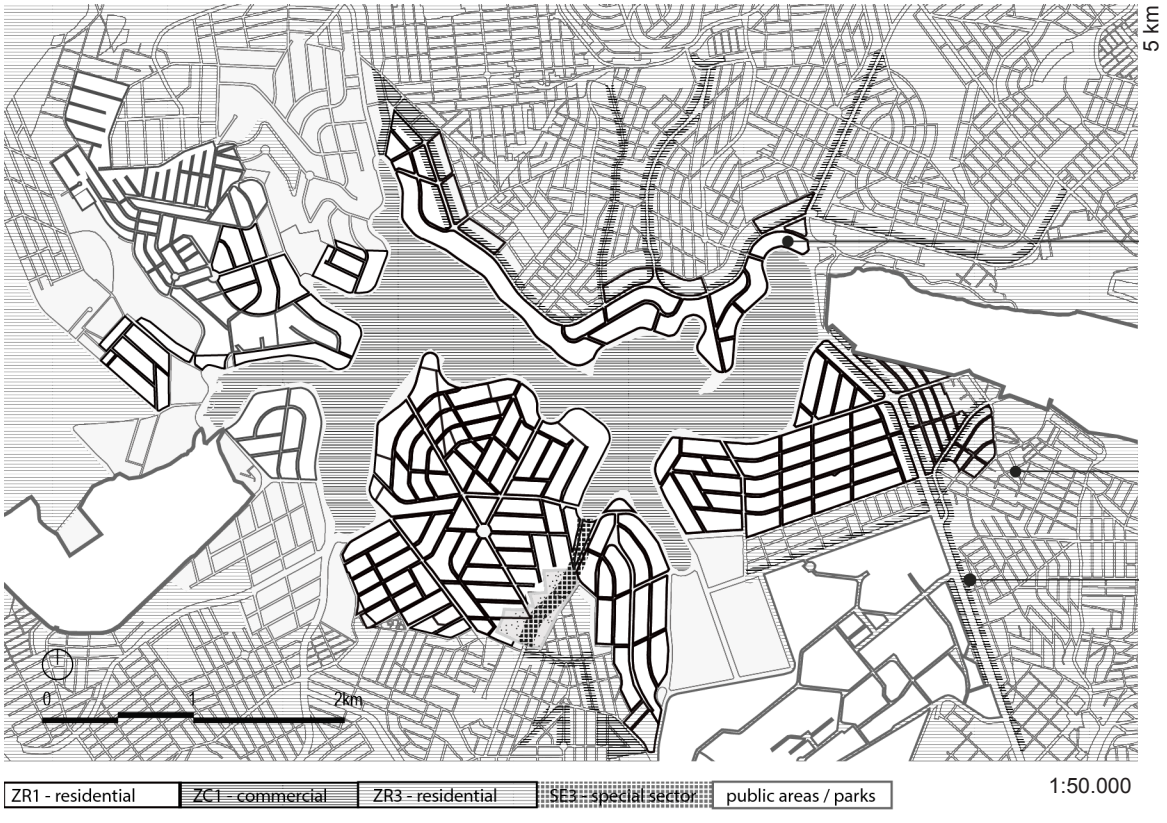
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Image 99:
View of Parque Guanabara, a permanent luna park close to the Igreja São Francisco, the Igrejinha.
Source: by author, 2016.

Those are at the Pampulha Velha, east from the lake and south from the airport; the old Vila Recreio, later renamed as Bairro Ouro Preto, which was a settlement a little south from the lake already appearing in the 1936 maps; and also the agricultural village of Venda Nova, north from the lake, in which many constructions are represented in the cadastre but no street appears. The aerial pictures of 1963 show a much denser occupation, especially in the eastern section of the lake, while Bairro Bandeirantes remains unfinished. Until today, in these pioneer neighbourhoods, plots no smaller than 1000m^2 remain unoccupied and its prices are not decreasing.

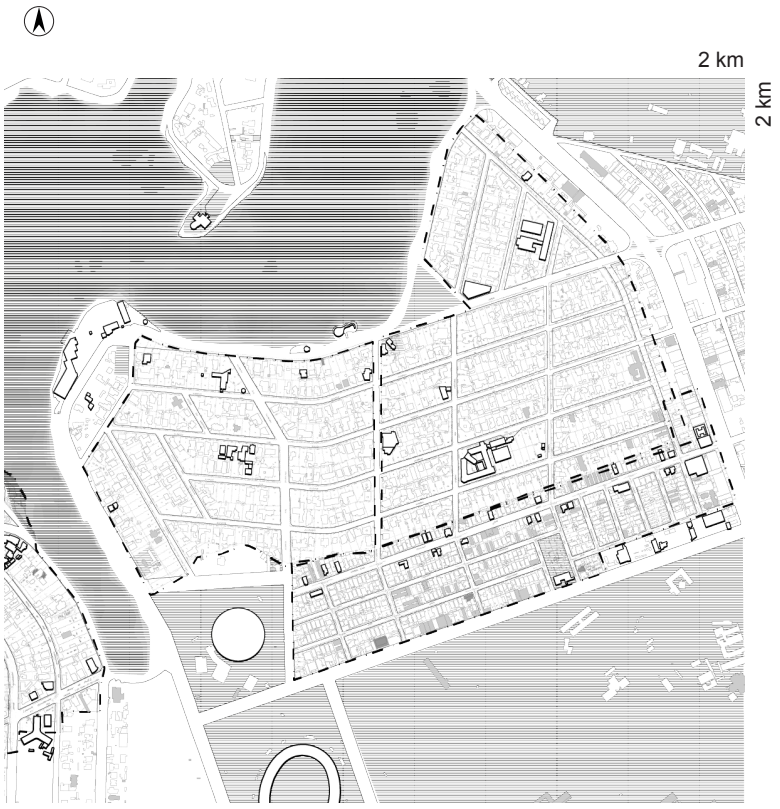
As already shown, the initial urban parameters, social practices and equipment installed in Pampulha were responsible for an elitist occupation, as the lake was surrounded by mansions and private sports clubs. However, the interstices left between the lake and the enclaves (the lake border itself being one of those exceptional spaces) and between one allotment and another were transformed in alternative spaces of inclusive sociability and urbanity, where diverse social layers meet and were commerce is allowed and practiced in everyday life. In addition, the successive interventions in the area contributed to the 'democratization' and 'popularization' of uses around the lake (Alvares & Bessa, 2010). To the equipment of the first decades were added the Parque Ecológico (2005) and gradual improvement of pathways and cycle paths, and most recent reforms creating public spaces around Mineirão football stadium. Already in 1948, the then mayor Otacilio Negrão de Lima saw the need to make Pampulha a leisure space for all (see further), however the elitist occupation of the neighbourhoods set the scene in practice. Spatial democratization took many decades to take place, after constant State investments in recreation, paralleled with other forms space appropriation, and basically the gradual erosion by time of the elitist claim on the environment.

Despite the physical and demographic growth, Pampulha's enclaves and peripheral settlements remained for a long time without a centrality. Most of the interviewed inhabitants revealed that it was only in the last decade that "Pampulha improved a lot" in the sense that it is now (almost) completely independent from the traditional city centre, having banks, supermarkets, health clinics, boutiques and other services. This new urbanity in Pampulha mainly inserts itself along the spaces that have been constructed more or less spontaneously, in the interstices between allotments and in the second ring of occupation, with more permissive uses.

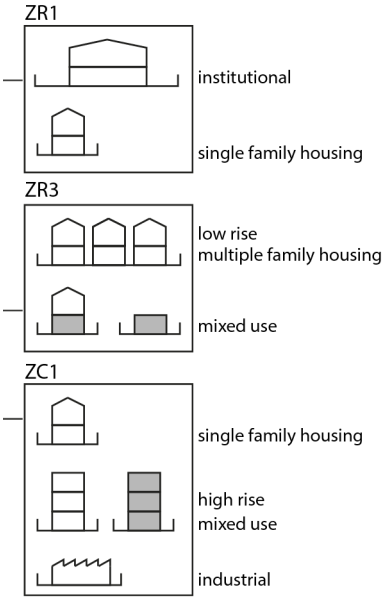




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Image 100:
Non-residential uses around Avenida Fleming.
Source: by author.
Data from: Prodabel, pbh.gov.br



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Image 101:
Non-residential uses in Bairro São Luiz
Source: by author.
Data from: Prodabel, pbh.gov.br



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Image 102:
Scheme of the 1976 Land Use map around Pampulha Lake. Source: by author based on the Law 2662/1976 (Belo Horizonte, 1976)

3.2.4. Preserving through legislation

Since the first zoning law of 1976, successive urban regulations have reinforced the single-family residential model around the lake, while being more permissive in the peripheries. This zoning defines the neighbourhoods around the lake as ZR1 - Residential Zone 1 - allowing, besides this, only institutional uses such as schools, hospitals, libraries, clubs, museums, etc., up to two floors high. (P. de Belo Horizonte, 1976)

The new zoning of 1996 (P. de Belo Horizonte, 1996), defines this area as ZP2 - Protection Zone 2 -, with limited density, footprints and uses. Planning authorities justified it with the recent demographic growth in the region, mainly in the form of informal settlements on the river valleys, contributing to the pollution of the lake. In the course of the following years, many of these settlements were the object of urban interventions which intended for the recuperation of water sources and depollute water. At the end, the main results were simply evictions[33]. The effect of this zoning law indeed reinforced segregation. Its launching reinforced also the tensions between conservation and diversification which characterize Pampulha since its beginnings. An instrument called ADE (*Área de Diretrizes Especiais* – special guidelines area) was applied to a defined perimeter in the region, cutting it out once again from usual regulations, to which special guidelines for occupation and activities would be later formulated.

The 2000's revision of Belo Horizonte's *Plano Diretor*[34] comprised tourism guidelines to promote a better touristic treatment and use of Pampulha, as well as the Serra do Curral, through the installation of touristic equipment, the generate of jobs and wealth, while considering the environmental preservation[35].

What was observed after this law, between its launching and its regulation through the law 9037 of 2005 (P. de Belo Horizonte, 2005), was the consolidation of commercial and service areas in the areas outside the ADE, bordering it, in the interstitial spaces above explained. Acknowledging the already existing heterogeneity of specific realms, - namely the corridors formed in the 'in-between' leftovers of enclaves, the new parameters added a flexibility of uses along specific lines, while maintaining others as strictly low density residential. This not only legitimized but reinforced the restriction of new forms of urbanity in a frozen Pampulha.

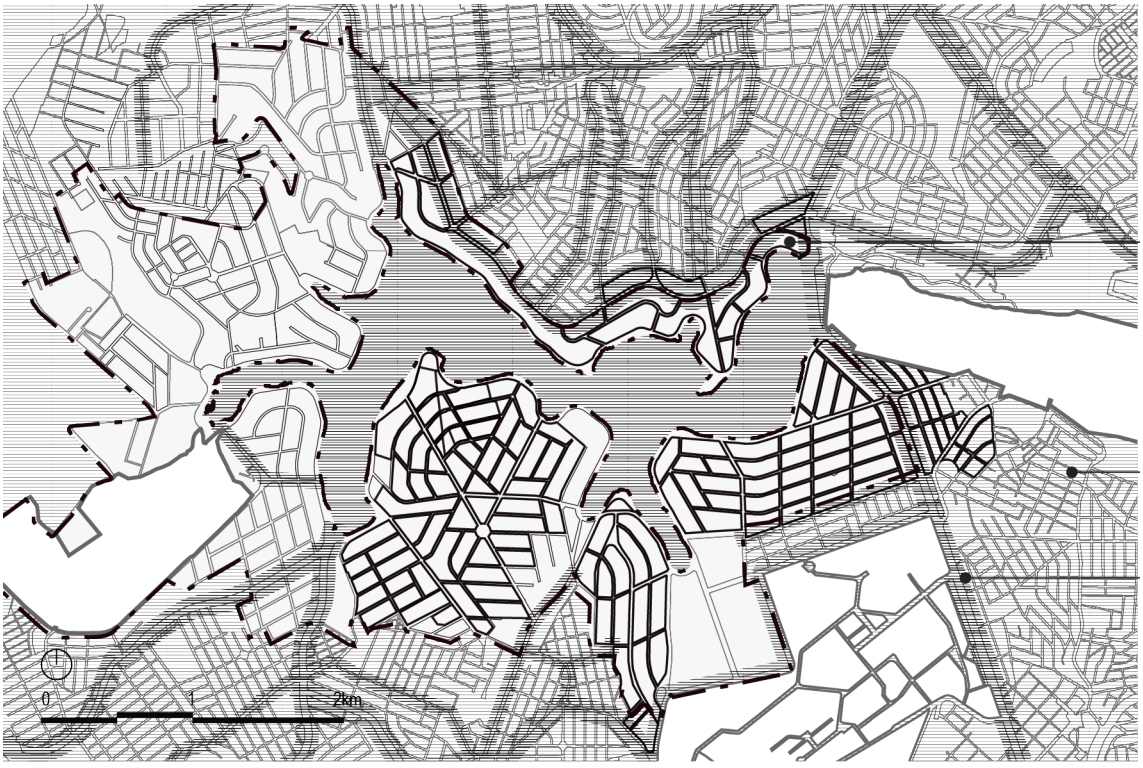
At the same time an action plan for the environmental recovery and development of the area was also included, aiming, besides protection, to promote an urban and economic development for the region thought the

investments in the qualification of public spaces. The aim was to encourage their appropriation and maintain Pampulha's attractiveness as a space for leisure, culture and tourism at the metropolitan scale (ibid).

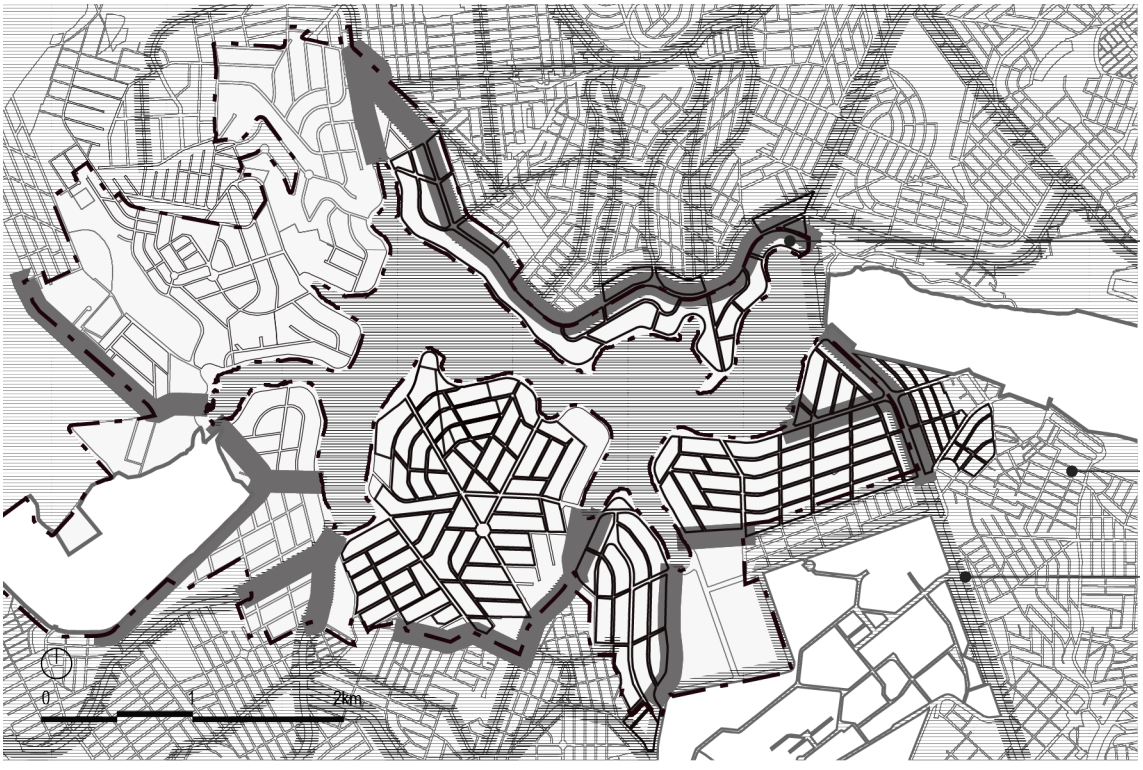
In this new law, a significant relaxation of uses is noted comparing to previous regulations, however still very selectively. It distinguishes basically three types of spaces in which some activities are desirable or not, according with a desired characterization. They are: the lakeshore; the commercial and services corridors; the interior of the neighbourhoods, predominantly residential. In the very precise listing of allowed and forbidden activities and uses, the appointed character of each space becomes clear. The border of the lake would be the main touristic attraction, allowing from theme parks to street vendors. Commerce is restricted to touristic products only. In the corridors, most commerce and service are allowed, except for heavy industry, garages, theme parks and street vendors. Inside the neighbourhoods, only the minimum services are allowed, such as bakery, gyms, newsstands, besides health clinics, geriatric homes and schools. Interestingly, some everyday uses are still not allowed inside the neighbourhood, such as coiffeurs and ice-cream shops, perhaps for their potential in attracting outsiders. The ADE instrument, also applied in other areas of the city, has allowed extremely tailored urban norms that normalize the everyday life of the settlements. On the other hand, as an instrument to be regulated outside the *Planos Diretores*, ideally updated every 10 years, it offers the opportunity for some flexibility in this tailoring.

Besides uses, the ADE law also sets more restricted urban parameters regarding building, going beyond the basic zoning. In the case of Pampulha some of them are: heights limited to 9 meters, a maximum footprint of 50% with a permeability rate of 70% and frontal setback of 5 meters. Although many houses in Pampulha have been enclosed with high walls, the article 24 of the instrument (ibid) predicts the visual permeability towards frontal gardens above 80cm height. These measures aim, at one hand, at the preservation of the environmental qualities of the lake, and on the other, the preservation of the aesthetics and visual integrity offered by the low-rise, gardened environment.

In the 2010's update of the *Plano Diretor*[36], some of the ADE's guidelines where modified as to allow more flexibility. According to the article 28, to the activities already allowed to each categories of space, auxiliary activities could be added, as for example, in the case of cultural and convention centres, the activity of food commercialization. This comes as to correct functional deficiencies presented in the previous regulations, which ended up making some activities impossible, as some of their functional branches

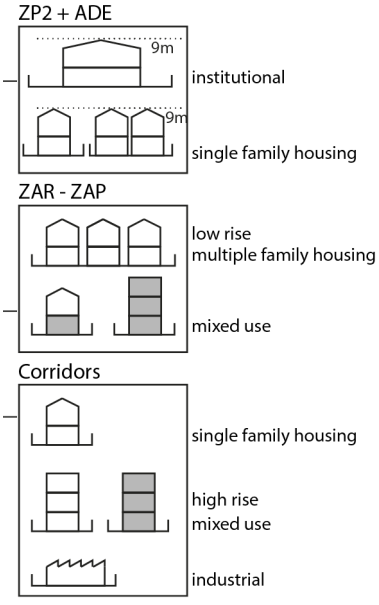


ADE Pampulha | Corridors | Other zonnings | Public areas / parks



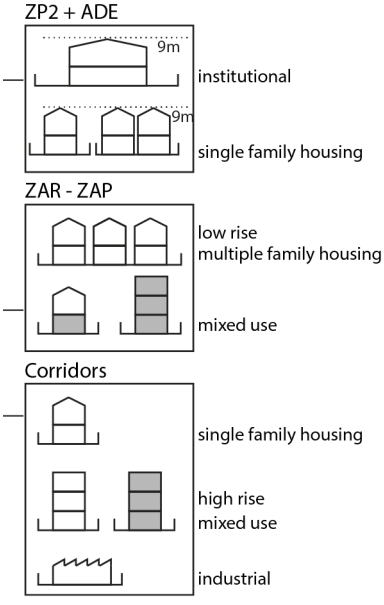
ADE Pampulha | Corridors | Corridors ADE | Other zonnings | Public areas / parks

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Image 103:
Scheme of the 1996 Land Use map around Pampulha Lake. Source: by author based on the Law 7166/1996 (Belo Horizonte, 1996)



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Image 104:
Scheme of the 2005 modifications to the 1996 Land Use map around Pampulha Lake, with the implementation of the ADE.. Source: by author based on the Law 7166/1996 (Belo Horizonte, 1996) and Law 9037/2005 (Belo Horizonte, 2005).

were allowed and others were not. Anyhow, the article's 3rd paragraph determines that the Executive power will regulate these associated activities, through a municipal council named COMPUR, which makes it again, very tailored as each case is analysed separately, having the investors pressure on one side and the residents at the opposite.

Additionally, article 30 makes special concessions to the instalment of equipment associated to culture, tourism and leisure, so that Pampulha continues to fulfil is predestined role, at the same time that it tries to deal with the issue of vacancy. Special urban parameters would therefore be conceded to any cultural equipment to be installed in vacant plots or in subtilized properties. In such cases, also the building parameters are modified, allowing occupation ratios larger than 50% with minimum 30% of soil permeability rate and heights superior to 9 meters, as long as the volume does not interfere significantly to views of 'Pampulha's Urban Ensemble' (Conjunto Urbano da Pampulha), and of the heritage listed buildings, namely Niemeyer's monuments.[37]

The article 39A reinforces the concern for Pampulha's vacancy, predicting the elaboration of technical studies aiming to present alternatives for empty or unused buildings, however, compatible with the residential uses of the region.

Since the *Plano Diretor* of 1996 (P. M. de Belo Horizonte, 1996) successive urban guidelines and special regulations have made Pampulha a battle field with two clear oppositions: on one side, the environmental protection, seen the severe problems of pollution and silting of the lake, in association with heritage protection, seen the value of its architectural landmarks. On the other side, there is Pampulha's persistent emptiness of residents and activities sided with the municipalities' ambitions of reinforcing its touristic potential through the development of the tourism industry.

This last demand was reinforced through the Law 9952 of 2010, approved just two weeks before the *Plano Diretor* update. The instrument established an Urban Operation[38] to stimulate the development of health infrastructure and cultural and business tourism seen the demands put by the Fifa World Cup of 2014, which had Belo Horizonte as one of the host cities. This controversial law, known locally as the 'Worldcup law', had the power to superimpose urban parameters determined by previous regulations, presenting several advantages for entrepreneurs in the domain of hospitals and hotels construction. Basically, it allowed to build more area than regularly, facilitated the licensing process and opened the possibility of converting to other activities after the event (in the case of hotels).

Consequently, two municipal committees and the mayor approved in March 2012 two high-rise hotels inside the limits of ADE, one of them being 400 meters from the football stadium and 700 meters from the Igrejinha, by the lake. The prospect of 15 floors-tall buildings so near to the lake and to the residential enclaves caused a great revolt by the residents. Although the hotels were never built, the issue reawakened an old fear, the verticalization of Pampulha. When the 1996 Plano Diretor was under elaboration, a rumour was spread about the construction of high-rise condominiums by the lake, which caused great fuss within the local associations and the local newspapers.

Already enlisted for heritage protection at the Federal, State and Municipal levels[39], the modernist building complex of Pampulha was additionally listed as a World Heritage Monument by UNESCO in July 2016. The candidature bid aimed for the title of Modern Complex, including a buffer zone. However, it was considered by the UNESCO evaluation committee as belonging to the Cultural Landscape heritage category once, beyond the architectural monuments, the landscape formed by the lake and the surrounding neighbourhoods were also considered as a man-made product worthy or preservation. In fact, it is possible to confirm, from the aerial photographs of the 1940s and 1950s that Pampulha's current nature was also a constructed one, once vegetation lacked in its first decades. Being considered a Historic Urban Landscape goes beyond the notions of a 'historical centre' or an architectural 'ensemble' and includes a wider urban context including topography, geomorphology, structures under and above ground.

Besides the protection of the five listed buildings, which are the Casino, the Casa do Baile, the Igrejinha, the Yatch Club and Kubitschek's weekend home, and the lake surface around its core zone, the candidature dossier proposed also the registration of a buffer zone, in which transformations would not be totally forbidden, but nevertheless would protect the area's characteristic landscape. The main elements composing the urban landscape that frames and surrounds the architectural complex are: the water surface, as the first motivator for the location of the buildings and its connecting element, the viewpoints, which allows the simultaneous visualization of the five buildings; the shoreline, with paths and gardens, the smooth undulated topography, which offers visual amplitude; the horizontality and the low densities which characterize its surrounding landscape; the predominance of single-family residential uses, commerce and services connected to leisure, tourism culture and sports. (Fundação Municipal de Cultura de Belo Horizonte, 2014)

According to this dossier, one of the threats to the preservation of Pampulha is the real estate pressure caused by recent large investments made by the State and the Municipality in the north region. Those are: the Linha Verde (Green Line), a transit infrastructure improvement program applied in 2005 at Avenida Cristiano Machado, one of the avenues connecting the centre to the north of the city; the expansion of the International Airport (2012-2016); the Cidade Administrativa (2010), a State administrative centre with around 16 thousand workers; the enlargement of the avenues Antonio Carlos and Pedro II, which connect Pampulha to the city centre; and the implementation of a BRT – bus rapid transit - system with a station in Pampulha, close to the dam. As a consequence of this dynamics the 2012 Regional Plan for Pampulha identified a large number of private buildings project approvals, demolitions and substitutions and property value increases (ibid, p. 297). Although the study identified an intense demographic growth, larger than the city average, this happened at the peripheral neighbourhoods and not in the protected shoreline enclaves, showing somehow the effectiveness of the protecting measures. The restrictive zoning of the area, added with the special guidelines of the ADE are shown in the candidature document as guarantees for the maintenance of this buffer zone landscape features, namely as a low density and low rise residential area (ibid). The UNESCO enlisting, in July 2017, was much celebrated by the municipality and other culture and heritage related authorities, as well as by Pampulha's lakeshore residents who saw another layer of protection guard the maintenance of their status quo.

Since 2014 a new Plano Diretor is waiting to be approved by the Municipal Chambers, until this date without success. Besides maintaining the protective measures in Pampulha, the new plan also reduces the occupation rate for already congested areas of the city, which include some areas surrounding the lake. As the plan has not, to the present day, been approved, there seems to be still space for discussions over the future of Pampulha, which revolve around the old quest for flexibility and consequent hybridization or preservation[40].

Under the initiative of two Belo Horizonte's council members, Mateus Simões and Gabriel Azevedo, the community was called to public hearings to discuss possible flexibilization of uses in Pampulha. At a section held on December 6th, 2017, in which the author was present, representatives of several sectors were present, including residents (mainly from the pioneer exclusive neighbourhoods São Luiz and Bandeirantes), members of the Associação Civil Comunitária Bacia da Pampulha, a civil entity for the preservation of the Pampulha water basin, representatives of the

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Image 105:
Transect accross the neighbourhood São Luiz, at the lake shore, the São José neighbourhood and the University campus.

Vertical scale proportion: 3:1

Source: by author with data from Prodabel.


Casa do Baile
Supermarket
School
Commercial strip
University Campus
1.500m
500m





SINDUSCON-MG, the syndicate of industry and commerce of Minas Gerais, of real estate developers associations (CMI – Câmara do Mercado Imobiliário), the Minas Gerais commercial association (ACMinas), large event organizers, amongst others. The resident's main complains were about the noise, traffic and pollution generated by parties in clubs, buffets and bars, especially when large concerts and events are held at the football stadium Mineirão. The community association named ProCivitas, formed mainly by São Luiz dwellers, together with architect Paulo Pontes proposed a large list of changes to the current regulations which included: the prohibition of bakeries and ice-cream shops in the residential areas, of food hawkers by the shoreline, buffets, theatre productions and convention centres everywhere inside de ADE. Amongst the ones to be authorized are: general services such as banks, gyms (only at the shoreline), offices of architecture, engineering, lawyers and photography inside the residential areas, small health services such as physiotherapy, acupuncture and massage in all areas. There were also complaints about the noise produced by an elementary school in the neighbourhood, which was in fact one of the first buildings there, already in the 1940s. Some residents also opposed fiercely to the installation of a hospital in the abandoned buildings of the hotel construction.

< Image 106; On the foreground the Pampulha late Clube. In the middle the green São Luiz neighborhood. Source: by author, 2019.

On the other side of the battle were the representatives of the commercial, industry and construction sector which defended the necessity of providing Pampulha with economic dynamism, providing the population with quality services today offered only by other neighbourhoods. The event promoters highlighted the importance of the sector for the promotion of cultural activities in the region, predestined as Belo Horizonte's playground, and for the significant economic input and temporary jobs generated by each event. On the occasion Samuel Lloyd, the then commercial director of football stadium Mineirão, reminded the dwellers that the stadium, inaugurated in 1967, was there much before many of them came to Pampulha.

An interesting intervention was the one of a young man named Gabriel Noronha, representative of the Bacia da Pampulha commission, who claimed that Pampulha was in fact not 'popularized', and its accessibility is terrible for the poorer. He points that the only public transport that comes from Contagem, the neighbouring municipality occupied by lower-income residents, is the one that goes to the airport, highlighting the segregated pattern of Pampulha's public access.

< Image 107: View of Jardim Atlântico neighboorhood, the thin and steep strip between the lake and Avenida Portugal. Source: by author, 2019.

Pampulha, conceived since its origins as the tourism and leisure centre of Belo Horizonte, sees its population resist against its main essence by

rejecting events and tourism activities. They raise the flag of the recent UNESCO protection to reinforce the maximum protection of the area without considering the reflect it has on tourism and its aggregated cultural and economic gains.

In the last decade Pampulha has also consolidated as the official sports centre of the city, a practice installed since its first projects. In the raise of an increasing national 'fitness mania' the lake has been the locus of monthly running competitions events, being its most important one, of international scale, the complete lake round which is about 18km long. The running and cycling activities take advantage of the lake flat and green landscape. Being artificially built, it is the only place in the city or even in the region where one can go at for more than 10km in a flat surface. Besides the menace for verticalization, the 2014 events had also had its effects on Pampulha. The Mineirão football stadium transformed, on one hand, the reduced number of seats resulting of Fifa's standards demands and the amount of investments made, meant that game tickets became more expensive, in short, more elitist. While pleasing the residents, who accumulate years of complaints about the masses of people attracted to the neighbourhood and partying at the streets before and after the games, this meant a severe prejudice for the democratization of Pampulha, and overall, sports[41]. On the other hand, the area surrounding the Stadium was transformed from an open parking lot into a sports esplanade with underground parking[42,] allowing a wider daily public every day uses and not only on match days. The large infrastructure investments in the stadium meant that it became apt for receiving large events other than football such as concerts (which also make use of the grass area), which amplified the city's cultural agenda, to the despair of its neighbours.

In the battle between hybridization and protection government and society play each a double role, on one hand protecting and on the other wishing for touristic and economic development. While traditional dwellers complain about urban violence, their protective attitude only fosters its emptiness, which makes it a vulnerable area for crime. Pampulha's large property enclaves are no longer affordable for the heirs of the first generation of dwellers nor attractive for newcomers. The municipality is under pressure for a 'sustainable' development for the area, concerning its touristic potential but also its environmental issues and the protection of its monuments.

At the second ring of occupation around Pampulha's lake and at the interstitial avenues, life continues in its everyday rhythm as it has been increasingly more independent from the city centre. For the inhabitants

of this area Pampulha is less a battle field between tourism and protection and more a urban leisure space, as it is for the rest of the city. On the contrary of the discourses of some of its lakeside dwellers, Pampulha is not only the one envisioned in 1943 but a large, complex and diverse region, the result of waves of urbanization, each bringing its own character.

3.4. Findings

When Pampulha was founded as a suburban recreational zone around an artificial lake, it stretched the tensions between centre and suburb, changing the everyday life pattern of Belo Horizonte's dwellers who now had an additional landscape in their panorama: a majestic piece of engineered landscape, a monumental flat-water plane in a hilly environment. With time, this first idea was aggregated by many other ingredients, which came in waves of urbanization with local, regional or global impetus, slowly fully integrating Pampulha in Belo Horizonte's urban dynamics.

While on the one hand Pampulha has transformed from an elite weekend place to a more democratic and socially mixed environment, the area has been able to maintain its essential character as a leisure space, despite the resistance of (some of) its dwellers. The maintenance of this status was, as seen, not a natural one, needing the aggregation of several layers of social and urban norms, in order to determine its desired forms and practices. While Otacilio Negrão de Lima and Juscelino Kubitschek were visionary in aiming to build, at Pampulha, a new city in new forms, they failed to see that it was eventually part of the same Belo Horizonte, with the same heterogeneous society, with is perpetuating contradictions. While Negrão de Lima, naïvely projected Pampulha as a place for all, Kubitschek intentionally wanted the neighbourhood to be inhabited and later privately developed by the elites, which later speculated on it. Even though, several layers of protection did not impede the region of creating its own life in the gaps and leftover spaces between enclaves.

The construction of Pampulha, breaking away from the restrained grid and distancing itself from the unorganized suburbs was a reaction to the old, outdated gridded city, wishing to inaugurate new forms of modernity in a completely different site. While in the city foundational core the order of the geometric grid was superimposed on the landscape, in Pampulha the horizontality of the water plane as imposed on its landscape. Its slow consolidation can be seen as a reaction to a certain agoraphobia of the emptiness of the new. The region was - and perhaps still is - for many years considered being "out of the city", a far-away point in the city's constellation.

It is common to hear in the speech of Pampulha inhabitant's sentences like "I will go to the city" in order to do this or that activity.

Like Belo Horizonte's foundational plan, Pampulha's creation was also responding to a set of ideals and representation of a certain quality of space and people to be constructed simultaneously through the making urban space. The achievements required large infrastructural investments and ground manipulation, which seemed to be no great challenge in face of the previous experience. As seen, Pampulha did not follow the usual path of urban development and space appropriation seen in the rest of the city, needing constant reaffirmations of its differential space, be it with governmental actions or social practices. In the current income map of the city, it is possible to see how Pampulha maintains itself as a differentiated space in the city. However, this is not only in terms of income distribution, but in the landscape offered by the lake and its surrounding urban morphology, which was only possible through extensive efforts in infrastructure, as well as regulations of forms, uses and practices.

Nevertheless, the constant tensions in Pampulha's territory demonstrates its persistent transitory space. The battles and tensions show that Pampulha, despite the persistence of its recreational identity remains an open signifier. It remains an exceptional case in the metropole Belo Horizonte, a differentiated landscape in generic a sea of suburban sprawl. However, the occupation mode seen on its shoreline might seem outdated, as present vacancy and imminent decadence indicates. It formed a model that has been exported to more recent suburbs in Belo Horizonte, as will be seen in the next episode, namely, in Nova Lima's Alphaville.

The episode has shown how the process of making a new space, although deriving from an ongoing suburbanization process and from a clear project is not free of tensions and contradictions. Social conflicts and oppositional ideas become transformed in plans, reports, regulations and eventually, direct action on the ground.

Seeing the construction of Pampulha as a landscape in construction has foregrounded the amount of efforts in terms of political mobilization, human labour and finances mobilized in order to construct a new, tailored environment. The alignment of systems of actions and systems of objects involved in spatial transformations has allowed thus to uncover, align and reveal the processes through which the farming hinterland of Belo Horizonte was very intentionally transformed in a (sub)urban leisure landscape with the formation of a very large artificial lake at its centre. A rhizomatic approach towards historical sources has combined political

discourses, cadastral plans, urban legislation and personal narratives to give texture to Pampulha spatial narrative.

An exceptional case in Belo Horizonte's urbanization history, Pampulha has received more investments that any other area in the region after the implementation of city foundational plan. Its differentiation was also a particular one as it was the object of special attention of successive mayors and of an exceptional body of urban legislation since 1939. Despite a suburb, Pampulha was intended to be a different suburb. Damming its river and transforming radically its landscape has gone hand in hand with urbanization efforts with only a few years separating the formation of the lake, the approval of the first allotments and reinvestments in infrastructure.

The spatial developments in Pampulha were also seen through the perspective of constellations, which has allowed not only seeing Pampulha as, however differentiated, one of the nodal points in Belo Horizonte's suburban expansion, but also the constellation of elements involved in this construction. The use of this interpretative lenses, revealed Pampulha's spatial formation as an assemblage of State infrastructure investments, private allotments, pre-existing settlements and also the exceptions. This view has been allowed by and reinforced thanks do the combination of an assemblage of sources including archival research, unstructured interviews, fieldwork observations and cartography.

The cartography produced for this episode has given special light to the exceptional character of its constructed landscape and urban spaces. It placed Pampulha within the general suburban urban expansion of Belo Horizonte, exposing its exceptionality. The 'stitching' of archival allotment approval plans has not only provided a visual timeline of Pampulha's spatial transformations, but also, combined with field work observation, has provided interesting discoveries. These mapping exercises have revealed a persistant pattern in the construction of exceptions with the emergence of the un-planned and un-wanted in between the mono-functional residential enclaves. The comparison with zoning laws has revealed the appropriation and maintenance of such exceptions through legislation.

Endnotes

1 Free translation from the author. In the original: *"Belo Horizonte era uma cidade nova e como tal, carente de muitas coisas. Parecia mais um jardim do que um centro urbano."*

2 Free translation from the author. In the original: *"A remodelação do centro urbano, com o asfaltamenteo da vias públicas e a modernização dos serviços correlatos de água, luz, esgoto e telephone, constituíam metas prioritárias. Mas não era tudo. Lembrei-me então da Pampulha – um recando paradisíaco, órfão da atenção das autoridades municipais".*

3 Previous name given to the locality of the Arraial de Bello Horizonte. See Chapter 2.

4 Free translation by the author. In the original: *"Em Bello Horizonte, havia ruas bonitas, no tempo do Curral d'El Rey – informa-nos o ex-senador Modestino Gonçalves. Hoje, senador, nem ruas antigas, nem modernas. O que já por aqui são longas filas de árvores só."*

5 A neighbourhood in suburbs

6 Free translation by the author. In the original: *"Habitantes da Cachoeirinha protestam contra as serenatas que o amor infeliz realizava alli todas as noites. A Cachoeirinha moderniza-se. Antigamente, eram os bairros aristocraticos que se queixavam dessa praga nocturna, resíduos de velhos costumes sertanejos actuando na alma nova da cidade. Hoje são os bairros remotos, onde o traço urbano se confunde com a linha rural, que ja não suportam os ais do amor não retribuido, os suspiros da ausência, os queixumes da ingratidão. O amor, banido ao perimetro urbano, é repudiado, agora, no proprio suburbio humilde, em que moram os operarios, os pequenos empresarios, os guarda-civis - a ultima gente que ainda amava no mundo, em summa. [sic] (…)*

Evidentemente, o homem normal, bem comido, bem vestido, bem penteado e bem amado, não faz serenatas. Mas os tímidos, os traídos, os ciumentos, os dolorosos, esses não encontram o somno na cama inimiga, em que tentam repousar. Levantam-se e vão para a rua, para o luar [sic] (…)

A policia tange-os das ruas do centro centro, as ruas do arrabalde não os querem, não há lugares para eles na cidade."

7 They are: Córrego Mergulhão, Córrego do Tijuco, Córrego Sarandi, Córrego da Ressaca, Córrego d'Água Funda, Córrego da AABB, Córrego Olhos d'água.

8 See more about Niemeyers buildings further on.

9 Free translation by the author. In the original: *"O lago espelhava as Colinas circundantes, e a esse jogo de reflexos juntavam-se as linhas harmoniosas do conjunto arquitetônico"*

10 Free translation by the author. In the original: *"Não se tratava apenas de uma criação arquitetônica adequada à sua localização. Na Pampulha, a paisagem seria modificada pela mão do homem, com a introdução de um element novo – a água. Esta seria, na expressão de Aufrére, a paisagem espiritual. Um cenário escolhido e preparado para um conjunto arquitetônico, concebido de acordo com a estética moderna."*

11 Free translation by the author. In the original: *"Esta seria a sua paisagem social, a alteração da natureza, para que ela servisse ao propósito de anteder à necessidade de recreação da coletividade."*

12 Free translation by the author. In the original: *"Tudo bem pensado e calculado, de forma a imprimir um décor diferente à paisagem mineira".*

13 Belo Horizonte sits in a transition zone between rainforest and the Cerrado, the Brazilian semi-arid.

14 In the last decades Pampulha has been receiving more and more services that makes it a self-sufficient region in terms of basic services. However, due to its high degree of connections within the Metropolitan region it can no longer be considered a Satellite city.

15 Initially a competition was promoted to choose a design for the Casino building, but Kubitschek did not like the results, which presented, in his opinion an outdated architectural style and chose Niemeyer directly, commissioning all buildings to him (Kubitschek, 1976). Interestingly, a similar process happened with the

design of the Ministry of Education Health in Rio de Janeiro in the preceding decade. Gustavo Capanema, its promoter, also did not like the competition results, canceling it, and hired the team of architects directly (Bahia, 2011).

16 In the first years of the Vargas' government, the figure of the Interventor functioned as the Governor of the State.

17 Then director of the Departamento do Patrimônio Histórico Nacional, the then recently formed department of national heritage, under the Mninistry of Education.

18 Aleijadinho was a mixed-race artist who developed his own authentic art in the churches of Ouro Preto, inaugurating a tradition of hybrid cultures. See Chapter 1.

19 The exhibition was part of the approximation with the USA in the context of the *'política de boa vizinhança'*. See Almandoz, 2010.

20 Free translation by the author. In the original: *"Essas obras seriam erguidas pela Prefeitura, como parte do plano geral de urbanização do local. Depois, surgiriam as ruas. Plantar-se-iam árvores. Construir-se-ia uma auto-estrada, ligando a Pampulha a Belo Horizonte. E por fim, já que os terrenos ali seriam grandemente valorizados, faria um apelo aos proprietários, no sentido de que colaborassem com a Prefeitura, construindo lindas residências, todas voltadas para o lago."*

21 Free translation by the author. In the original: *"Em torno no grande lago, circundado por uma avenida em construção, é fácil prever a edificação de um novo e pittoresco bairro de recreio, destinado a attrahir a affluencia daquelles que, em dias de folga, queiram entregar-se a entretenimentos, repousando do dituturno labor na cidade. A larga superfície líquida presta-se aos esportes de natação e remo, assim como o pouso de hydro-aviões. Com a proximidade do campo de aviação, o bairro da Pampulha constituirá, pois, um aero-porto, para server excellentemente a Bello Horizonte."* [sic]

22 Free translation by the author. In the original: *"… é com satisfação que verificamos ter essa medida dado nova movimentação à Pampulha, sem nenhum dano para as obras de arte ali existentes".*

23 Free translation by the author. In the original *"é preciso reconhecer que o esporte, principalmente em nosso país, constitui fator de apreciável contribuição à educação integral do homem, educação em que o físico perfeito será apenas reflexo do espírito bem ajustado. Por isso mesmo, convencemo-nos de que estaremos realizando trabalho patriótico sempre que estivermos desviando moços dos botequins e das casas de jogo – para afeiçoa-los aos exercícios esportivos".*

24 The first proletarian forms of collective housing were named as villas, Portuguese for villages as they were formed by a compound of small houses organized along an internal street. Later, the same name was used for allotments targeted for workers.

25 Available at https://prefeitura.pbh.gov.br/fundacao-municipal-de-cultura/arquivo-publico/acervo/relatorio-de-prefeito. Last consultation on 5th February 2019.

26 Available at Arquivo Público de Minas Gerais.

27 Free translation by the author. In the original *"Os projetos, levantamentos e nivelamentos de subsivisão dos terrenos marginais à represa da Pampulha, numa faixa de quinheotos metros para cima da avenida Getúlio Vargas, serão feitos pela Prefeitura, a requerimento dos proprietários, (...)"*

28 Free translation by the author. In the original: *"Projetados pela Prefeitura, o arruamento e a subdivisão de lotes, será a planta entregue ao proprietário para completa-la com as indicações prescritas no artigo 4º do mencionado decreto (...)"*

29 Data available at: http://portal5.pbh.gov.br/plantacp/inicio.do , last consulted on 30th May 2019

30 Such impressions were built with interviews or informal conversations with Pampulha dwellers and through a speech given by the then president of the local dweller's association, Pro-Civitas, Juliana Vaz, in an event held in Pampulha by the Casa Cor in 2015.

31 Until 1975 it was called Bairro São Francisco, changed through the Decree 2711 of 17/02/1975. Information containing it its cadastral plan number 15802M12.

32 About the fear of crime and the raise of fortified enclaves, see next chapter, and Caldeira, 1997.

33 The effects of this measurements on lake pollution control were limited, since many of Pampulha tributary waters are located in the neighbor municipality Contagem, therefore out of Belo Horizonte's municipality's control.

34 *Plano Diretor* is a Brazilian term for a legally bound comprehensive plan.

35 The *Plano Diretor* of 1996 (P. M. de Belo Horizonte, 1996) had already foreseen, however without much detail, the promotion of actions aiming to consolidate Pampulha and Serra do Curral as leisure and ecologic tourism destinations, as well as actions for the water treatment of Pampulha lake.

36 Law 9959 / 2010 (PDDI, 2010)

37 The special concessions are anyhow subjected to a study of impact (EIV – Estudo de Impacto de Vizinhança) to be approved by the municipal councils CDPCM-BH and COMPUR.

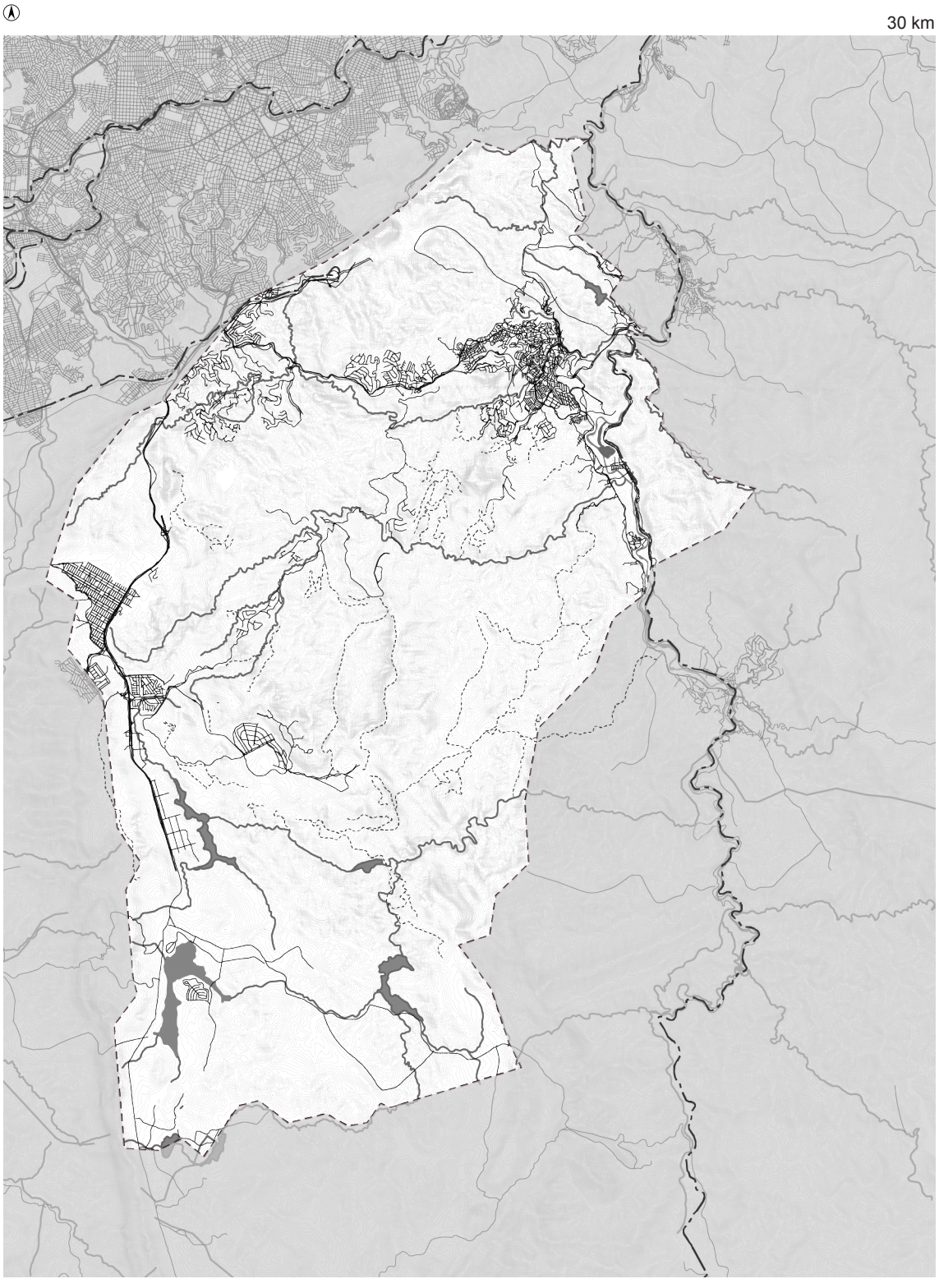
38 In Brazil this kind of instrument is called *"Operação Urbana"*, which can be translated as Urban Operations

39 State protection by IEPHA/MG, Instituto Estadual do Patrimônio Histórico e Artístico de Minas Gerais in 1984; Federal protection by IPHAN, Instituto de Patrimônio Histórico e Artístico Nacional; and Municipal by CDPCM-BH, Conselho Deliberativo do Patrimônio Cultural do Município de Belo Horizonte, in 2003

40 On 6th June 2019, when this thesis was being revised for final submission, the *Plano Diretor* was approved.

41 The same effect was felt in several football stadiums across the country.

42 In the opinion of the author, with a prejudice also of its original architecture, unfortunately


30 km
40 km
1:200.000

1

Nova Lima

The third episode of Belo Horizonte's spatial history is made of another significant leapfrogged urbanization event, over spilling towards the neighbouring municipality of Nova Lima. As in the case of Pampulha, Belo Horizonte's elite groups started to evade from the city from the second half of the twentieth century onwards, a movement that continues up to this date. What started as scattered horizontal condominiums surrounded by nature has evolved to blur the borders between the two municipalities with an amalgam of self-standing towers.

Although this movement was partly stimulated by state infrastructural projects, it was also highly induced by the mining activity, instigated by different ideological motivations, and performed completely by private initiatives. This has resulted in a completely different socio-spatial configuration then what we have seen in Pampulha. However, resonating some features seen in the last cases, Nova Lima is here portrayed as a third foundational move in Belo Horizonte as its urbanization has inaugurated new territories with new modes of urbanization. Although its most recent developments in form of vertical towers is a result of the overspilling of Belo Horizonte's elite neighbourhoods, this radical shift in Nova Lima's previous pattern of occupation occurred, as Pampulha, in the form of a leapfrogged urbanization, in a carefully orchestrated occupation, through tailored forms of allotments in combination with other forms of landscape transformation such as mining.

The case's exceptionality is directly related to the uncommon urbanization history of Nova Lima, deeply intertwined with mining since mid-eighteenth century. While the municipal urban core is built on top of nineteenth century gold mining shafts, its current challenge is balancing iron-ore open pits with residential enclaves' sprawl and with the question of ecology. Most of Nova Lima's history is associated with a particular mine and a particular company, Mina Morro Velho and Saint John mining respectively, which activity lasted for around 130 years. Throughout three centuries, Nova Lima's initial gold mining camp has evolved to become a municipality of around 90 thousand inhabitants in an area of 429,004 km^2 (IBGE, 2018, 2019).

< Image 108: Urbanized areas in Nova Lima, the third episode Source: by author, 2019

Seeing this wide territory as a transforming landscape allows to embrace themes that have been meaningful to its urban historical development, such as ecology and mining. Hence, the history of Nova Lima's most recent fragmented urbanisation can be seen in fact as a part of a longer history of patched urbanization which occurs in deep rooted relations to its mining past and present. Although the economic and social relations of Nova Lima with mining have long been well known, a vertical perspective of its materiality reveals the direct connections between its underground resources with its surface objects and shapes. Here, descriptive cartography has allowed to expose and contrast their vertical relations.

Therefore, to explain Belo Horizonte's metropolitan region current expanding urbanization, while merging with Nova Lima's fragmented tissues, it is necessary to retrocede to the early history of this territory. This episode covers thus a wider timeframe and a larger area, stretching the scales in all directions. Although chronologically it runs mostly in parallel with the first two episodes, it is presented last since its successive waves of urbanization continue to inaugurate, almost daily, new urban forms and dynamics that are completely different than the previous episodes of Belo Horizonte's expansion. Moreover, the most recent developments are more connected with contemporary forms of neoliberal driven urbanism, which has as main ingredients the use of urban-marketing and a business oriented strategic planning (Arantes, Vainer, & Maricato, 2000).

Nova Lima is presented lastly also because its peculiar territorial history has resulted in a patched urbanization pattern in which different urban forms from different times are still detached and therefore individually identified. While it's historical urban core represents the usual colonial mining town which has evolved to a midsize city with its own internal dynamics and socio-spatial hierarchies, it's hinterland is patched with urban formations from different periods responding to different ideologies and urban references: gated and non-gated communities, 'edge city' (Garreau, 1991 apud Soja, 2000) inspired condominiums and most recently, a vertical suburbia. This recent vertical development has been developing at the border between Nova Lima and Belo Horizonte, that is, simultaneously at the suburbs of both. It has not evolved as a suburban sprawl of Nova Lima's own core, but respond to a metropolitan real estate logic that has Belo Horizonte at its originating centre. It is therefore part of the polycentric urban network that has been formed around the region.

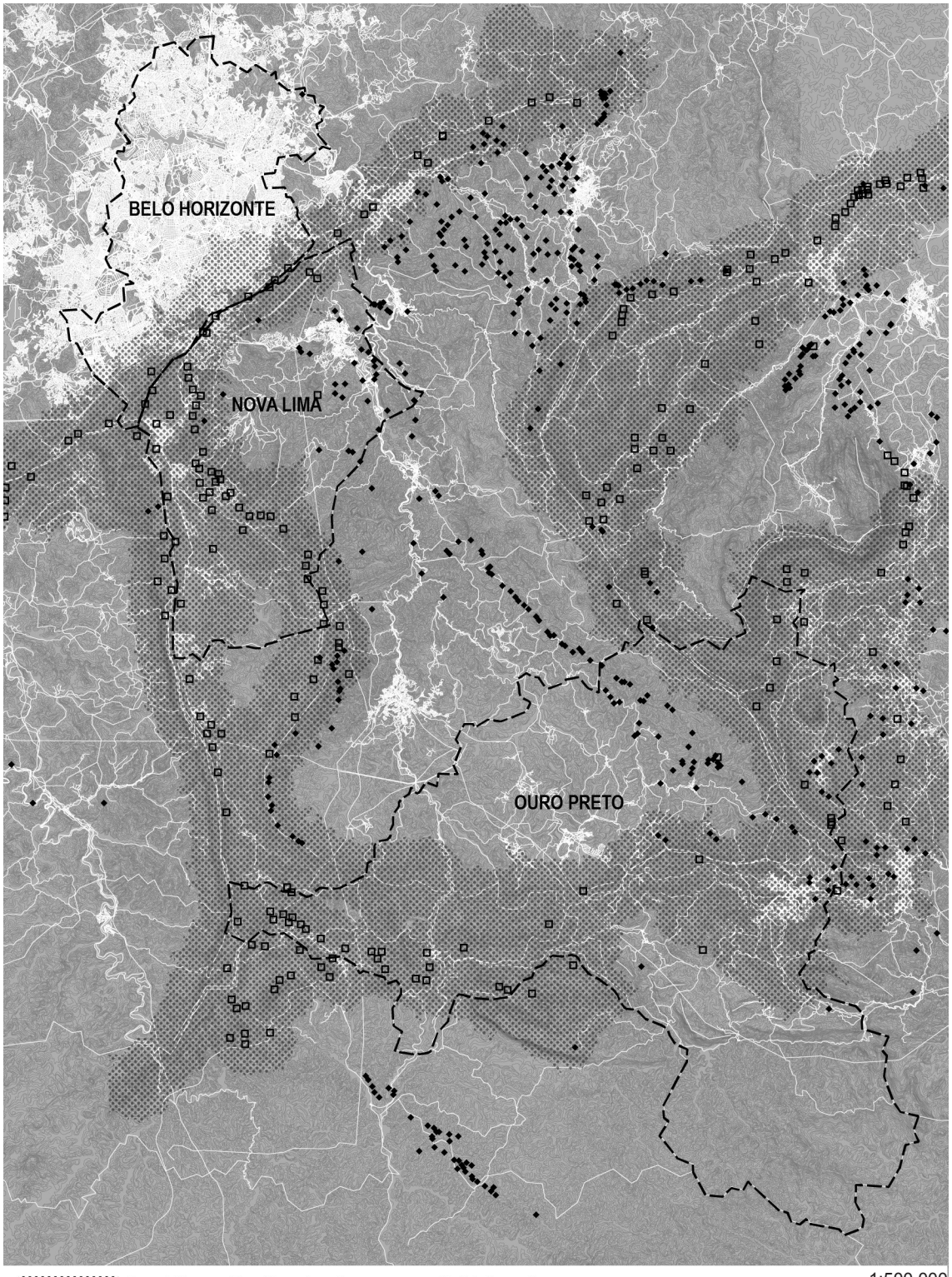
Although the case of Nova Lima is here presented as an exceptionality in Belo Horizonte's territorial expansion, not only differences between the episodes should be pointed. The challenge is to identify common patterns

of urbanization processes that, however presenting different spatial forms in diverse space-time configurations, might reveal similar processual ingredients throughout more than one century of urbanization. This third episode tries to show that, whichever ideologies are used for justifying urban developments, some *habitus* perpetuate in Belo Horizonte's urban ethos. Some of the most remarking ones are: the use of State infrastructure as impetus for urbanization, extensive ground manipulations with environmental consequences and social segregation.

Within the research project entitled *'A Expansão Metropolitana de Belo Horizonte: Dinâmica e Especificidades no Eixo Sul'*, developed since 2002 by researchers from UFMG and PUC-Minas, many studies were produced about Nova Lima's most recent developments in Belo Horizonte's southern axis of urban expansion. Recognizing the municipalities mining history, the researchers focus laid on the last two decades of urban development, associated with Belo Horizonte's metropolitan region dynamics. The results have not included therefore in an depth historical understanding of the intertwinements between its mining territory and its material and spatial configurations. The works have contributed mainly in understanding the demographic and spatial transformations in this area analysed in the perspective of metropolitan planning and the produced social-spatial segregation in the last decades. Moreover, such research was developed between 2002-2006, years in which the most intense transformations of this area were just beginning, especially at Vale dos Cristais, Alphaville, Vila da Serra and Vale do Sereno (see further).

This research wishes therefore to complement this extensive research, firstly by updating it with the most recent developments, confirming or not some of its predictions. In addition, it wishes to re-connect Nova Lima and Belo Horizonte's current urbanization processes to past events in their expanded territory, searching for persistent patterns and involuntary memories.

In the following sections, the chapter will analyse the territory of Nova Lima from a landscape perspective, seeing it as an extracted landscape, in which its soil, vegetation and water have been extracted and transformed for mining and most recently for urbanization. The relation between surface occupation, infrastructure, topography and underground resources has been explored and is revealed in this chapter through the cartography produced. Then, it analyses how investments done for mining intertwine with those for urbanization in a symbiotic relation, while aggregating to other State infrastructure projects and how those have participated in Nova Lima's urbanisation *modus operandi*. Next, the chapter exposes Nova Lima's


75 km
100 km
BELO HORIZONTE
NOVA LIMA
OURO PRETO
Quadrilatero Ferrífero borders
Municipality limits
Gold deposits
Iron deposits
1:500.000

history of a patched urbanization since the 19th Century, when the mining industry started to have larger impacts in the territory, especially in regard to urbanization. Later it focuses on the new form of tissue that started to emerge from the 1940s-1950s, the one of the condominiums, and similar forms of patched tissues, that is, self-contained and detached from the rest of the urbanized areas. Here, the application of the interpretative lenses developed in the thesis allows to uncover other forms of explaining this phenomenon that goes beyond the usual interpretation of the enclaved society and the fragmented city. The analysis incorporates then themes such as mining and ecology to understand the particular mode of urbanization developed in Nova Lima's landscape.

4.1 Extracted landscape

The history of Nova Lima is also a history of mining in Minas Gerais. Occupying the north-eastern portion of the Quadrilátero Ferrífero, the iron ore rich region in the south-centre of the state, Nova Lima's history has been shaped by the extraction of its underground mineral resources, first gold and lately manganese and iron ore.

The *Quadrilátero Ferrífero*, a special geological formation, is constituted by a block of pre-Cambrian formations elevated in its four sides by differential erosion. The bordering ridges are between 1300- and 1600-meters height, named: Serra do Espinhaço, to the south, Serra do Caraça, to the east, Serra da Moeda, in the west and Serra do Curral, on the North (Azevedo, 2007). Serra do Curral, as seen in the first episode, forms simultaneously the physical barrier and administrative limit between Belo Horizonte and Nova Lima, while Serra da Moeda is dividing Nova Lima to its western neighbour Brumadinho[1].

The words of British Richard Burton, travelling in the region in the 1860s, describe well the intrinsic connections between this town and mining: "Built by mining, it fell with mining, and by mining, it has been 'resurrected'." (Burton, 1869b, p. 195). His description of the place as "an irregular mixture of bulge and hollow, sprinkled with church and villa, with garden and orchard, and beautiful with its threading of silver stream."(ibid, p. 193) is a fine example of the intrinsic connections between the topography of mining and Nova Lima's nineteenth-century village.

It is essential therefore that an account of Nova Lima's urban history is able to go beyond an account of usual urban materiality – roads, settlements

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Image 109:
The border of the Quadrilatero Ferrífero special geological region and the presence of mineral deposits around Belo Horizonte, Nova Lima and Ouro Preto.

Source: by author data from rmbh.gov.br and CPRM

and buildings - and takes into consideration its entire territory, under and above ground through a landscape perspective. It should also not be only a history of resource extraction, but fundamentally of how mining, urbanization and eventually ecology are historically intertwined.

Nova Lima's origin has a similar history to many other gold mining towns in Minas Gerais. The discovery of alluvial gold, easily available in its creeks, gave origins to the first settlement, the Vila de Nossa Senhora do Pilar de Congonhas do Sabará, which was later renamed Villa Nova de Lima, today Nova Lima.

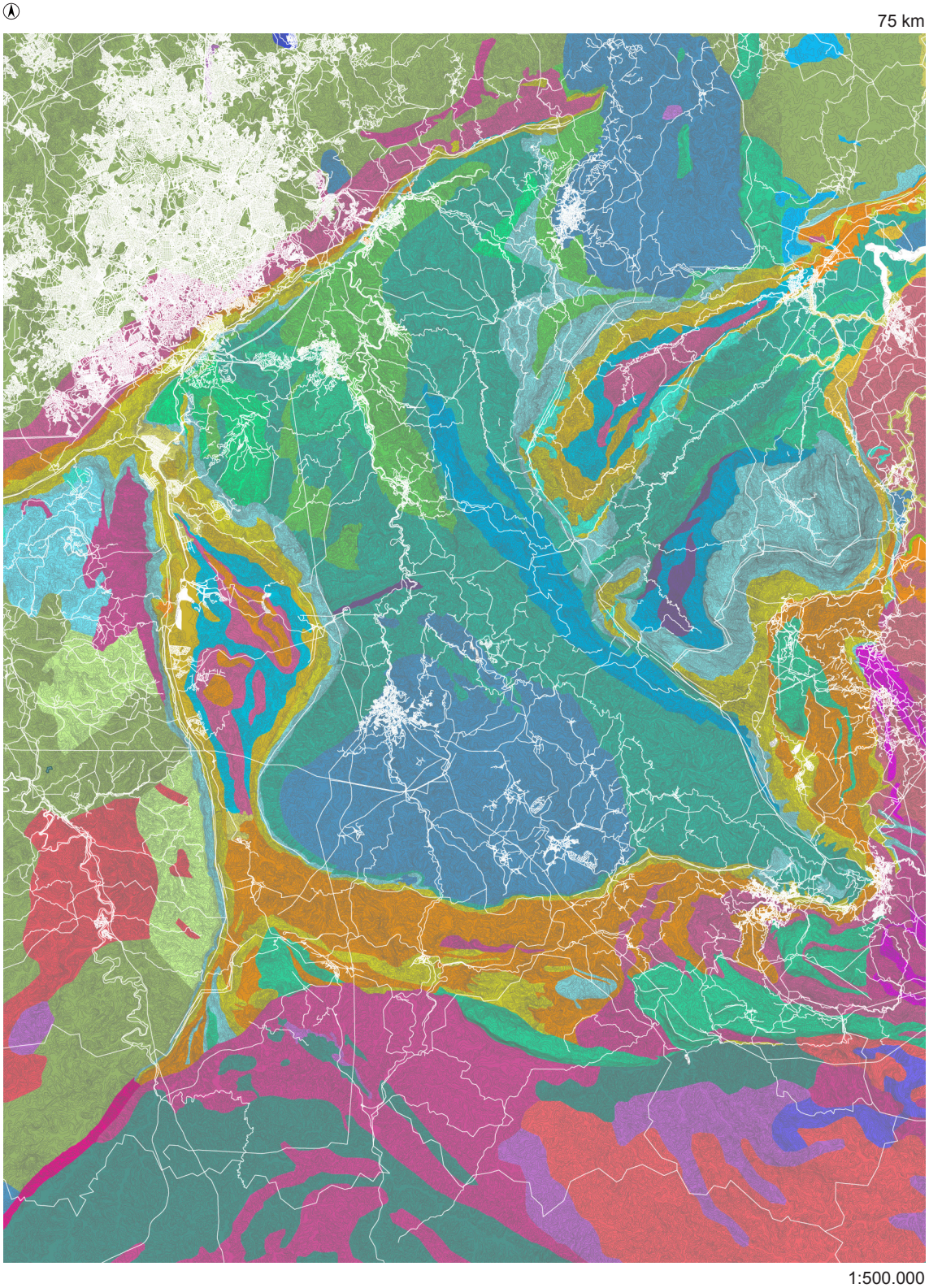
The records of urbanization in Nova Lima date since at least 1720, when the church Igreja do Senhor do Bonfim was erected[2], an event that usually marked the establishment of a settlement in colonial Brazil. Not much of its eighteen-century history is recorded, being one *arraial* [3] amongst the many that composed Minas Gerais mining urban constellation. Like many others, the settlement emerged in the heydays of the gold rush but started decaying when this cycle was finished. As the alluvial gold was extinguished, the miners started to move camp elsewhere in search for new opportunities, abandoning mining for agriculture, with the cultivation of sugar, tobacco, cacao, corn and, later, also coffee, according to the report of Hollowood (1955). As Paula (2000) has demonstrated, the development of mining in the region allowed also the incremental development of a productive diversity and with it an active internal market due, on one hand to the need for supplies and, on the other, to the cyclic nature of the mining economy. Therefore, the 'abandoning' of mining to which Hollowood refers, was only a temporary shift of focus from mining to the strengthening of agriculture, an activity already taking place in parallel to the mines, which capitalizes from the infrastructure already put in place. Mining was however not completely abandoned, resurfacing with great strength only one century later, as we shall see further.

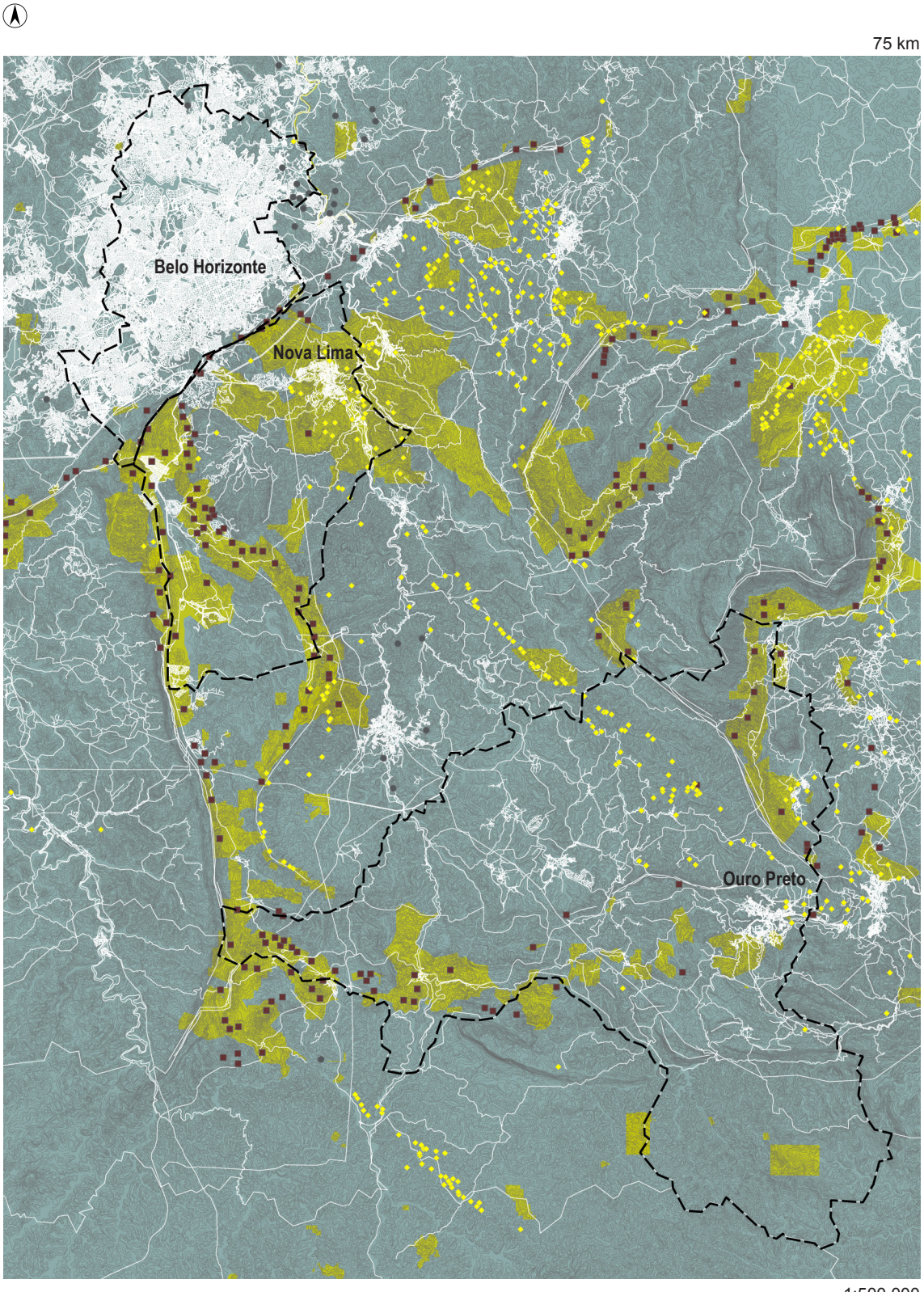
The development of agriculture was however not very significant in the *Quadrilaterro Ferrífero*, due to the naturally low fertility of its iron rich soil. Typical of the region, Nova Lima's vegetation alternates between rupestrian fields on higher altitudes and steep scarps and rainforest on valleys (Coelho et al., 2017). Low fertility has therefore contributed to the relative preservation of this ecology, in places not disrupted by mining. On mining sites, nature was transformed in alternations of hollow and bulge as having been described by Burton.

> Image 110: Urbanized areas over geology of the Quadrilatero Ferrífero an, south of Belo Horizonte.

Source: By author. 2018. Data from CPRM.

The more the mining technology advanced, more drastic became the nature manipulation for its purposes, which went hand in hand with


75 km
100 km
1:500.000


75 km
100 km
Belo Horizonte
Nova Lima
Ouro Preto
1:500.000
Mining Concessions
Iron deposits
Gold deposits

urbanization. Although the very deep gold mining tunnels are not visible from the outside – in 1915 the mine had already reached 1.775 meters deep (Hollowood, 1955) and 2.453 in the 1940s (Maia, 2014) – they nevertheless caused great transformations in the environment surrounding them.

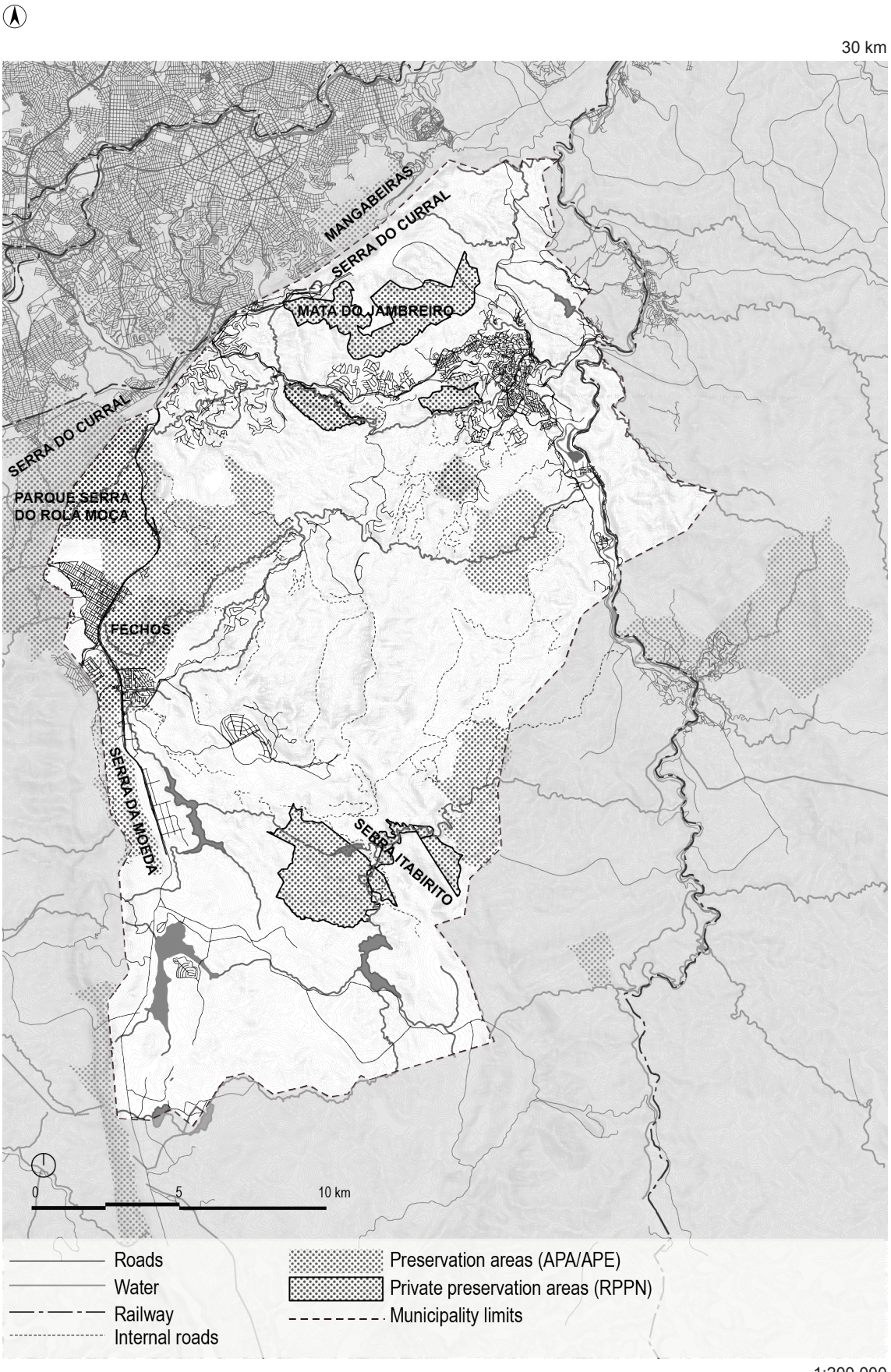
Besides water and soil, the extraction of resources also consumed, for example, enormous amount of wood, used everywhere and intensively in the mining enterprise. Around the 1950s the Fazenda Jaraguara, a farm located at the margins of the Rio das Velhas, downstream from Nova Lima, was acquired by the Saint John D'el Rey Mining Company with the purpose of wood supply. The 1917 report of the then company director Georges Chalmers enlisted the advantages of the recently built railway, which included the transport of wood. Moreover, it facilitated the transport of 4.400 workers assigned for the plantation of eucalyptus. (Hollowood, 1955)

Therefore, the gold mining enterprise acted on one side extracting wood and on the other, planting new trees and transforming its surrounding landscape. Today, eucalyptus continues to be largely employed, however its purpose is not only the wood itself. In many areas, the species has been introduced as a reforestation measure. Its fast growth accelerates the construction of the image of a recovered landscape. Eucalyptus are, however, exotic species which contribute to the drying off of water springs. Moreover, they are largely used as a buffer vegetation around iron ore extraction pits, hiding them from the view of the highway or neighbour condominiums, minimising visual and consequently social impacts of the mining activity.

From 1904 the installation of a hydro electrical system by Saint John D'el Rey Mining Company resulted in the formation of the lakes Codorna, Miguelão and Lagoa dos Ingleses. As in Pampulha, the emergence of artificial water bodies has generated their shoreline occupation, mostly directed towards housing and leisure. At Lagoa dos Ingleses, the formed landscape was capitalized for the construction of the Alphaville Lagoa dos Ingleses, a luxury gated community inaugurated in the 1998 at the south portion of the municipality (Anglogold Ashanti, 2017; Hollowood, 1955).

The same mining company also canalized water from rivers passing through Nova Lima's urban core, firstly for the washing of gold, but afterwards also serving the city. Until today, the water canals forcefully mark the city, being strong elements of local identity. Today, two main parks largely used by the population for leisure have been developed along those water canals

<
Image 111:
Urbanized areas. mining concessions and resources availability. Source: by author, 2017. Data from CPRM.


30 km
40 km
MANGABEIRAS
SERRA DO CURRAL
MATA DO JAMBREIRO
SERRA DO CURRAL
PARQUE SERRA DO ROLA MOÇA
FECHOS
SERRA DA MOEDA
SERRA TABIRITO
0
5
10 km
Roads
Water
Railway
Internal roads
Preservation areas (APA/APE)
Private preservation areas (RPPN)
Municipality limits

1:200.000

named Rego dos Carrapados and Banquetas. The commodification of Nova Lima's waters have therefore also contributed to the construction of its urban image and places of sociability.

While in one hand the presence of mining has consumed part of the territory's nature, under and above ground, on the other it has, until today, also contributed partially to its preservation, as the lands with mining concessions are kept in reserve for possible later exploitation. As most of its territory has indeed been under the control of mining companies since the beginning of the nineteenth century, Nova Lima has been able to resist Belo Horizonte's horizontal expansion (as the possibility of mining had to be safeguarded) and therefore to preserve its nature significantly (for the moment).

Despite the large dimensions of resource extraction in this area, Nova Lima still had – and relatively still has – a large portion of its territory as preserved green areas. Its exuberant landscape presents a seemly endless succession of green hills. Its nature has then become the main marketing tool for real estate and the main motivation for dwellers of the new condominiums who wish to live in an urban setting of some sort, with all commodities provided, and still embedded within nature.

Contradictory, this exuberant view is more and more punctuated by residential towers that seem completely inadequate for their setting, considering the empty surroundings and the 'topographical amnesias' (Teixeira & Ganz, 2004) produced for their insertion. These new forms of urbanization have been adding new challenges to the usual that are due to the clash between environment and mining[4]. This new urbanisation is developed at such a scale that it starts acting as a third force with its own contradictions as it simultaneously fuels land consumption and stimulates ecology preservation activists. The new urban public in fact claims the surrounding nature as ecological asset for their own benefit, firstly for the preservation of the green view and secondly for the maintenance of locational exclusivity and quietness.

The dispersion of horizontal, and more recently also vertical, condominiums all over Nova Lima's territory has been contributing to the commodification (and lately the destruction of) nature as, with urbanization, green areas are devastated, hills are chopped, large areas become impermeable, water demand increases and rivers are polluted.

However, as Wachsmuth and Angelo have argued, whatever looks green is automatically assimilated to something good, since "plants and vegetation are obviously sustainable, because they are obviously synonymous to first

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Image 112:
Protected areas in Nova Lima's territory in several categories. (State level)

- APA (Áreas de Proteção Ambiental) are areas of environmental protection in which a sustainable use is required.

- APE (Áreas de Proteção ecológica) are ecological protected areas, predominantly aiming for the preservation of water catchment areas.

Those can be private or public land, under the administration of the State.

- RPPN (Reserva Particular de Patrimônio Cultural) are private reserves of cultural heritage on private land on the initiative of the owner and privately administrated.

Parks, like the Parque Serra do Rola Moça are areas for integral perservation.

Source: by author with data from rmbh.gov.br and mma.gov.br

nature itself." (Wachsmuth & Angelo, 2017, p. 7). Thus, lines of eucalyptus planted by the mining companies are not only perceived as a "natural" nature, but later defended as such. Using "the aesthetics of green urban to communicate sustainability to lay audiences" (ibid, ibid) real estate marketing decorate their 3D images with plenty of green that does not in fact correspond to reality (See Image 127). After acquiring apartments surrounded by green and overlooking the green succession of hills of the preserved Nova Lima, dwellers start to oppose to new allotments in the region, raising the environmental flag[5].

In addition to obvious visual impact on the green landscape, the social clashes are mainly regarding the preservation of water catchment areas. Interestingly, the same type of rock formation which contains large deposits of iron – the metasedimentary called Itabirito – is also the most important aquifer of the *Quadrilatero Ferrífero*. Its waters are therefore used both for mining and for supplying Belo Horizonte's metropolitan region (PDDI, 2010). Besides having many springs, the formation also has a large water deposit capacity (Beato, Monsores, & Bertachini, 2013). Belonging to the Cauê geological formation, the Itabirito is exposed mainly in the syncline[6] forming the Serra da Moeda and Serra do Curral, the western and northern borders of Nova Lima, respectively. Besides being patched with iron ore extraction pits, the ridge formed is also where the BR040 highway was implemented and to which urban settlements were attached. The juxtaposition of infrastructure, mining and urbanization have increased the water disputes and the ecological tensions in the region.

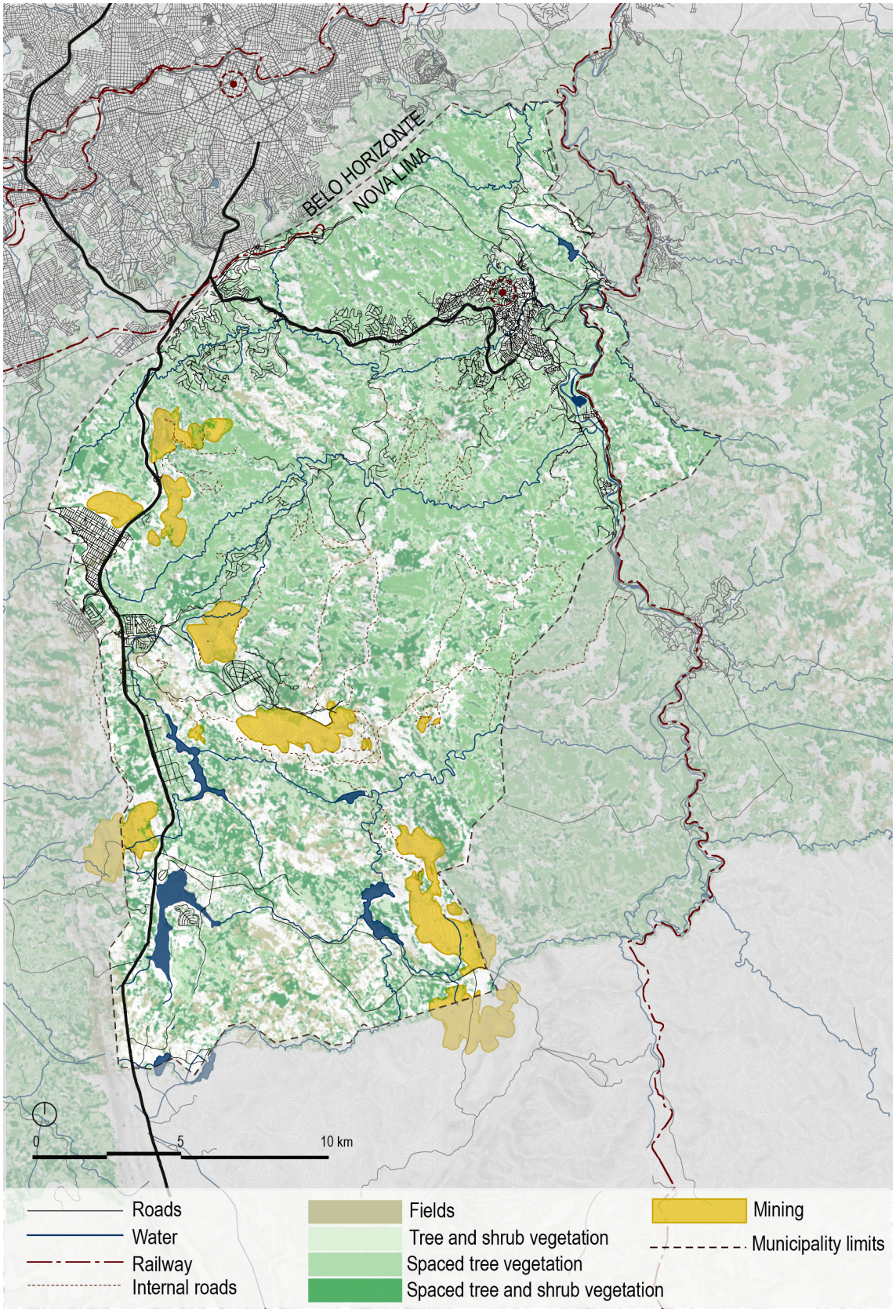
4.2.Mining-urban infrastructure

Contrary to what was seen at the foundation of Belo Horizonte and in Pampulha, where the State has played a fundamental part in the investment in infrastructure, what we see in Nova Lima is the private sector playing the leading role in that sector. In the nineteenth century, the modernizing investments directed for the mining infrastructure were extended to the city of Nova Lima, such as transport, electricity and water networks. Today, mining companies have their parallel systems of railway and water, which they also provide for some condominiums. The provision of infrastructure networks, primarily for sustaining the mining activity and secondary for the city, has acted as to transform the landscape, be in the canalization of water courses, be in the formation of dams or construction of railways, highways and bridges.

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Image 113:
Series of sections accross Nova Lima's territory, depicting its main water courses which include the lakes created with the implementation of the mining hydroelectrical system in 1904. It is overlayed by its current patched occupation.

Source: by author with data from rmbh.gov.br.


0
5
10 km


BELO HORIZONTE
NOVA LIMA
0
5
10 km
Roads
Water
Railway
Internal roads
Fields
Tree and shrub vegetation
Spaced tree vegetation
Spaced tree and shrub vegetation
Mining
Municipality limits

As previously introduced at the beginning of this thesis the political and economic changes in nineteenth-century Brazil, a direct result of the country's independence in 1822, resulted in an upturn in the mining economy in Minas Gerais. After independence, the local dynamics started to change as the colonial economic dominance began to be replaced by other forms of economic subjugation, through the direct action of foreign enterprises, especially British. From this moment, the young country's government, thirsty for investment and technology, applied several measures to facilitate the entrance of foreign companies.

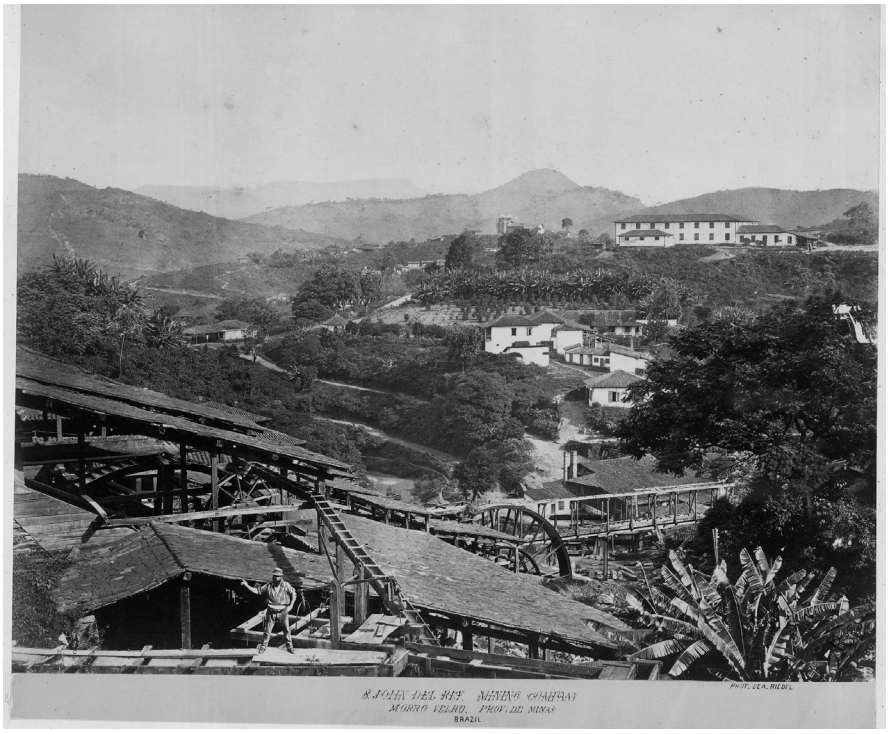
According to the accounts of Burton (1869) the first English company acting in Minas Gerais was the "Imperial Brazilian Mining Association", established with the acquisition from a local Baron in 1824, of a mine known as Gongo Socco in the municipality of Caethé. After the Imperial Decree of 1829 allowed foreign companies to exploit local resources, many British companies were installed in Minas Gerais. The most significant one is the Saint John D'El Rey Mining, established in São João d'el Rei[7] in 1830 and transferred to Nova Lima in 1834, with the acquisition of the Mina de Morro Velho. The mine was known to belong to a certain Padre Freitas, who had sold the mine to an Englishmen. This intermediate owner was not capable of investing in advanced technology for a profitable extraction of gold and sold it to a larger company, capable of inputting significant capital for the necessary technological leap. (Pires, 2003).

The foreign investment capacity in new technologies allowing the extraction gold in depth injected new air into the mining economy in the region and consequently also increased the circulation of capital. Morro Velho was, for many years, the mine producing larger yields of gold in the whole country. The company's technological input , allowing to reach deeper veins of gold, resulted in a prosperous business that lasted for many decades. In 1879, the company was responsible for 83% of the annual world production, with 1.511,50 kg of gold[8].

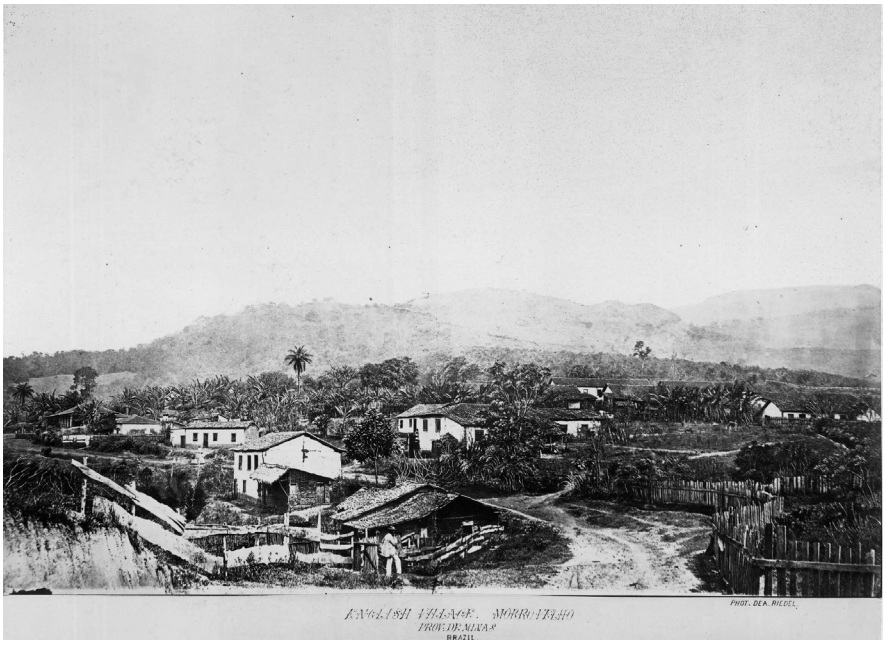
Despite the new technologies applied, the main labour force used by the mining companies consisted of slaves, until slavery was formerly abolished in 1890. Nevertheless, the machinery used required a new division of labour inside the mine production which also included faiscadores, freelance gold diggers, who were forced to adhere to formal employment. This new mode of production, concentrated and capitalized, subjugated thus some of the local population to its production system and to monthly payments. The free miner was, from this moment, alienated from the production (Pires, 2003). Since the beginning of mining in Minas Gerais, the work force had been composed by a mix of slaves and free workers. In 1834, when

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Image 114:
Types of vegetation in Nova Lima and mining open pits.

Source: by author data from rmbh.gov.br, Instituto Cipriano and Google Earth.



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Image 115:
Saint John Del Rey Mining Company. 1868-69.
Author: Arthur Riedel
Source: BN



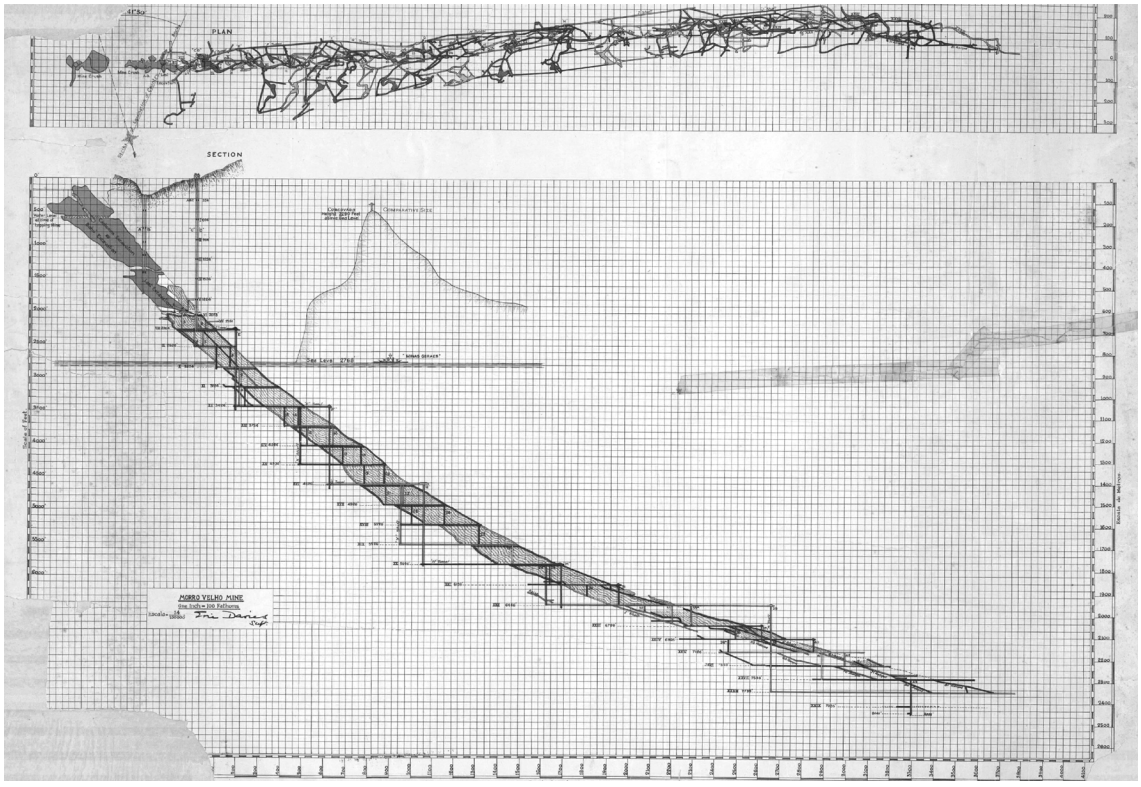
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Image 116:
English Village. - Morro Velho. 1868-69.
Author: Arthur Riedel
Source: BN

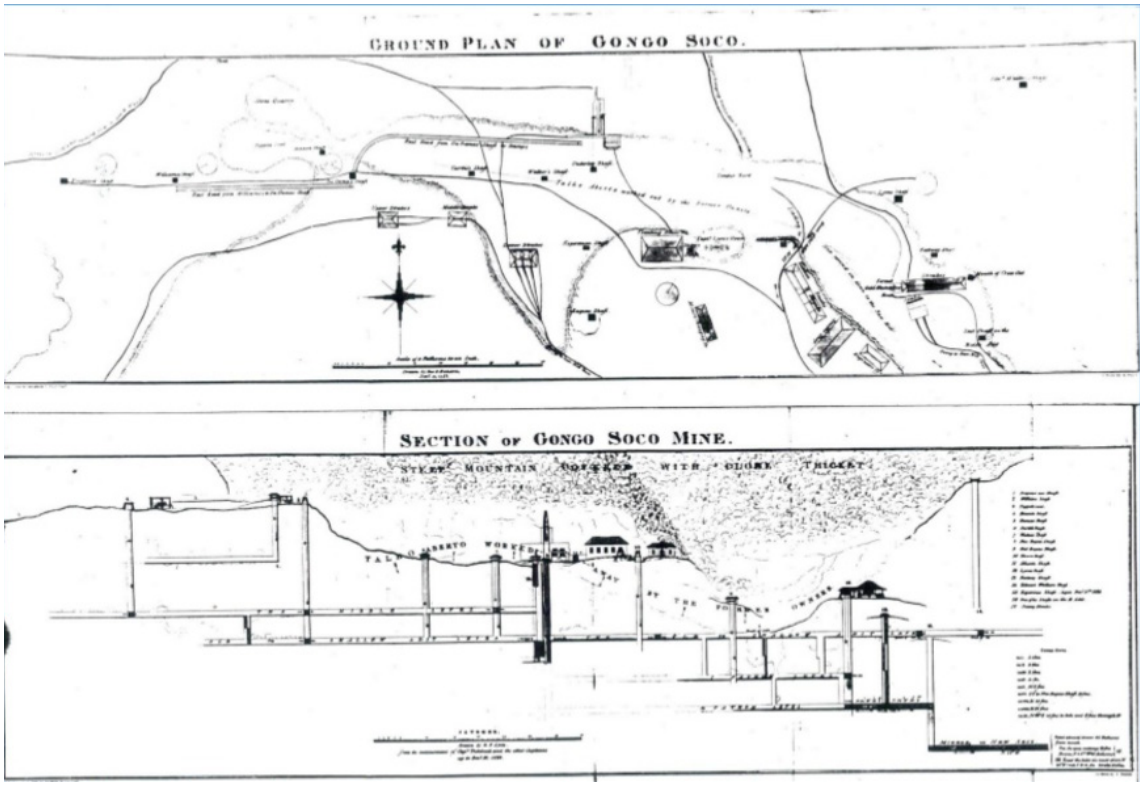
the Mina Morro Velho was bought, 122 slaves were transferred to the mines, 200 slaves were bought and the number of employees was between 80 and 100 (S. de A. P. Costa, 2008, p. 69). In the second half of the century, the country was already transitioning towards the abolishment of slavery, having already many freed slaves. In 1871 the *Lei do Ventre Livre* declared free all the children born from slave wombs. However, the Company insisted for a long period in using the slave work force, properly trained for the new modes or production.

This scheme was able to combine two opposing concepts, industrial capitalism and slavery. Since most of the production was exported, it was more interesting to elevate profits by using slave force than producing a local consumer market. In this international division of labour, Brazil occupied the position of primary resources provider for industrialized countries, such as England. Nevertheless, the presence of the British company injected somehow energy in the economy of Nova Lima and Minas Gerais already in the nineteenth century, and moreover in the following century with the development of a local industry.

Their presence also shaped the construction of Nova Lima in many aspects from the cultural perspective – through the instalment of British schools for example – as well as the factual construction of city infrastructure. The implementation of a private railway in 1913, connecting Nova Lima to the new provincial capital and from there to the ports in Rio de Janeiro served primarily to facilitate the exporting of products (in face of the poor condition of the national transport network) and consequently connected Nova Lima dwellers with a larger urban network by providing easier access to Belo Horizonte. Before that, people and goods had to travel from the Honório Bicalho station, built for the inauguration of Belo Horizonte. Although this station only eight kilometres distance – in a straight line - from the mine of Morro Velho, sometimes the trip could take days (in the rainy period) in face of the poor condition of the roads. With the electric train, the trip was done in a good half an hour and costed half of what used to be charged for the transport with mules and ox cart. (Hollowood, 1955, p. 79-80)

The technological and connection inputs meant also that the urban network of mining became more efficient. The company also provided electricity for a large part of the city, after the installation of hydro-electrical plants in 1904, with the creation of two lakes in the southern portion of the municipality[9]. According to Hollowood (1955) when he visited the area, the lakes served as a weekend refuge to the company's employees.


PLAN
SECTION
MORRO VELHO MINE


GROUND PLAN OF GONGO SOCO.
SECTION OF GONGO SOCO MINE.

Morro Velho was not only the main economic driver of the town but shaped immensely the collective memory of its people. Being its main employer, the history of Nova Lima's families is intrinsically connected to the history of this mine. Moreover, it was, for decades, the main actor of its urbanization, physically transforming the city as the company prospered. For example, the main icon of the city today is an aqueduct known as Bicame which crosses the aerial space of the city center, having being constructed by – and to serve the mining purposes of – Morro Velho mine.

The English company constructed not only houses for free and slaved workers but constructed entire neighborhoods organized according to the workers hierarchy. The neighbourhood named Quintas is formed by houses in English Cottage style with large backyards and orchards, built for the higher rank English miners and passed along to mining engineers employed by the company descending from Saint John D'el Rey, today Anglo Gold Ashanti. According to Hollowood (1955, p 90) more than a hundred houses were constructed in ten years, what served to attract more workers. In 1938 the mines had 2044 regular workers, showing an increase since the previous decade[10].

< Image 117: Plan and Section of Mina Morro Velho around 1900. Source: APM

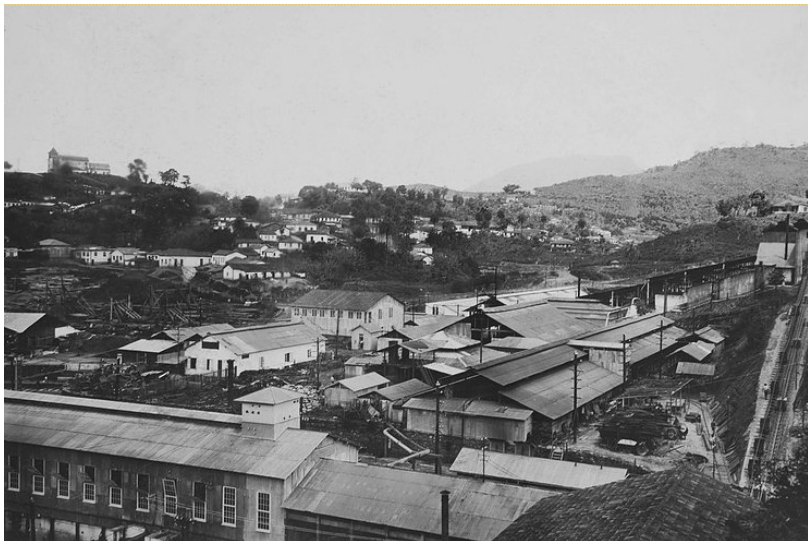
Facilities such as hospitals, schools, hotels and sport areas were installed initially in the proximities of the old mine and later expanded in the borders of the colonial village. The houses for the higher rank mine managers occupied a slope close to the mine, cut by a water canal, the banqueta. The large one-story houses usually occupied the middle of the plot with a garden at the front and an orchard in the back. Until today, the neighbourhood plot structure and housing typologies are preserved, not yet substituted by other typologies. For lower rank workers, row houses were constructed on flatter areas with small collective spaces such as laundries and bathrooms. In both settlements, streets and houses are positioned as to better suit the topography with the maximum efficiency while avoiding landfills and cuts (Costa, 2008).

With the inauguration of Belo Horizonte in 1897 and the railway line in 1913, Nova Lima began to be connected with the emerging industrial scene in the central region of Minas Gerais. After standing for a long time aside from the national industrialization scene, focusing mainly on mining, agriculture and cattle breeding, Minas Gerais industrial sector catalysed greatly with the inauguration of a number of steel plants from the 1910s, and as a result of the national industrial upsurge in the 1920s and 1930s. The beginning of the century saw an upsurge in the mining economy with the increase of production of the Morro Velho mine, production between 2,5 and 3 tons of gold per year, and the discovery of manganese

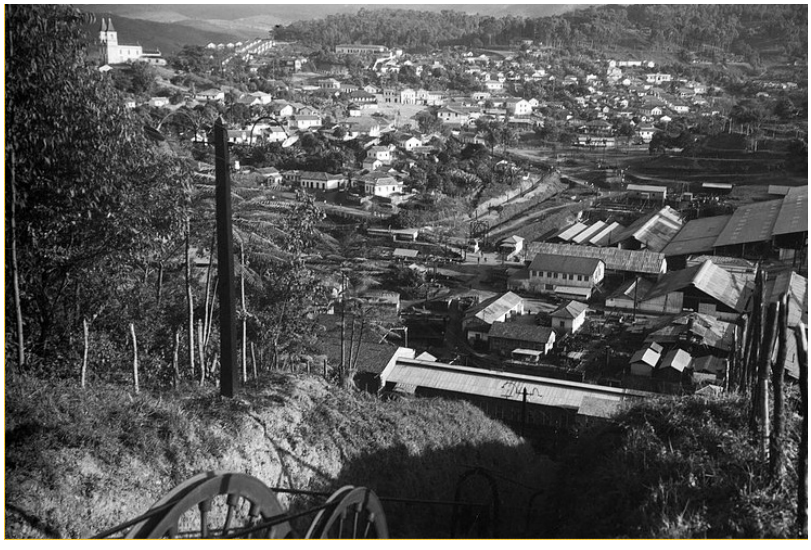
< Image 118: Section of Gongo Socco Mine. Source: MMM Gerdau



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Image 119:
Railway implemented by Morro Velho
Date unknown
Source: www.sindmineiros.com, visited on April 2017



<
Image 120:
View of Mina Morro Velho and Nova Lima.
Date unknown
Source: www.sindmineiros.com, visited on April 2017.



<
Image 121:
View of Mina Morro Velho and Nova Lima.
Date unknown
Source: www.sindmineiros.com, visited on April 2017.

in Lafaiete, a municipality in the same region. As part of a regional project for industrialization and boosted by the investment attraction of the recently inaugurated capital, steelwork plants began to be installed in the *Quadrilatero Ferrífero* area. In general, at a national scale but also in Minas Gerais, the First World War contributed to accelerate the process of substitution of imported goods. (Singer, 1968). Close to the capital, those plants would guarantee a consumer market as well as benefit from the transportation network. In 1917, the Usina Siderúrgica Mineira was installed in Sabará, neighbor of Belo Horizonte to the east, becoming in 1921 the Companhia Belgo-Mineira as a result of the association with the Belgium-Luxembourg industrial consortium ARBED-Aciéres Réunies de Bubach-Eich-Dudelange[11]. After 1930, the development of Minas Gerais' steel industry profited greatly from the connection through railway to the port in Vitória. Its expansion also allowed the introduction and or further development of other industries in the state in the decades that followed. (Singer, 1968, p. 245).

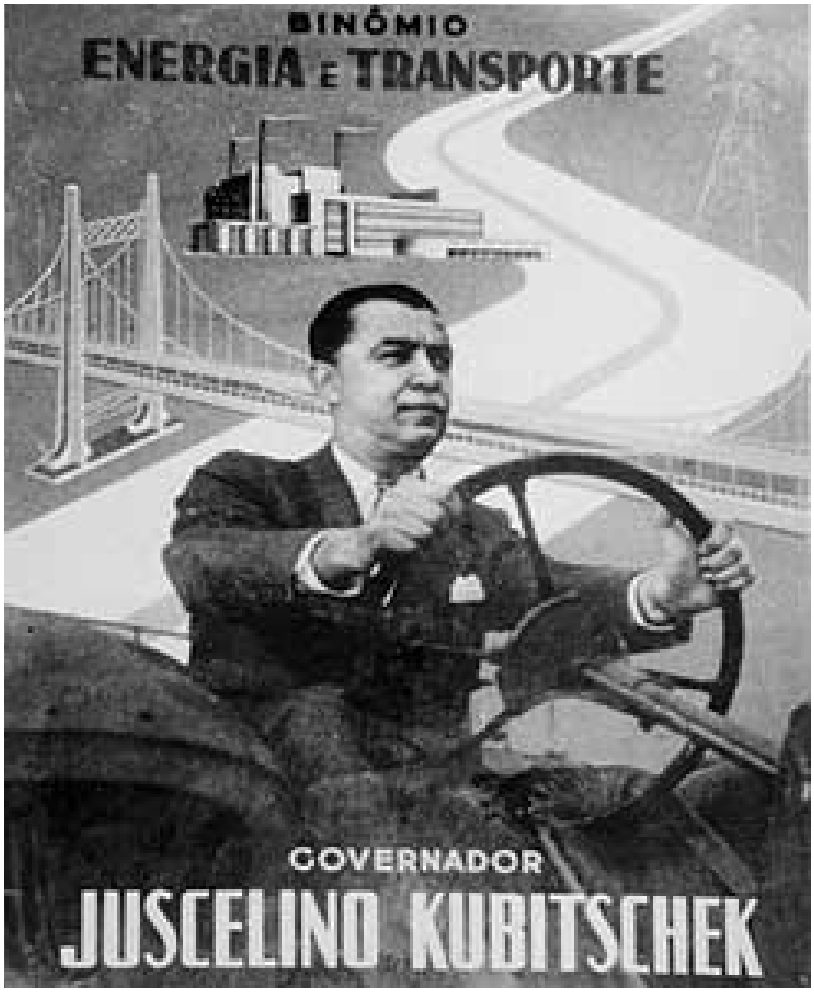
The national-regional projects for development were intensified in the post-war years through the application of import-substitution policies which aimed at the country's industrial development. The scarcity of imported goods and therefore demand increase during the World War I and II were beneficial for the national industry. The subsequent governments took advantage of the momentum to provide incentives for the sector. In Minas Gerais, this project was applied under the so-called "Energy-Transport binomial", Jucelino Kubitschek's campaign slogan for State Governor, a position he occupied between 1951 and 1955, immediately before becoming Brazil's President and constructing Brasilia. This project's aim was to develop the State's industrial sector, so far predominantly agricultural, by providing the necessary energy for industries and a transport infrastructure for exporting of goods.

For the metropolitan region of Belo Horizonte (Nova Lima included) this project had several spatial implications. The creation of a state-run energy company, CEMIG, in 1952 spurred the development of local industry, which included Contagem's industrial plant and Mannesmann, a steelworks plant installed to the west of the capital. The development of many steelwork companies around the region, and the progressive slowing-down of gold extraction meant that Nova Lima started gradually shifting towards the iron ore extraction, today its main economic activity.

The second half of the binomial, transport, meant heavy investments in the transport network, which lately replaced the railway system for the flow of goods and people[12]. The projects aimed at extending the road network



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Image 122:
View of BR040 with truck.
Source, by author, 2019



<
Image 123:
Image from Kubitschek governor campaign.
Source: wikicommons

around Belo Horizonte, which had been implemented since 1936. (Singer, 1968). A major federal highway, BR040, was constructed in the 1950s connecting Belo Horizonte to Rio de Janeiro, substituting the old paths that passed through the Rio das Velhas valley, east of Belo Horizonte and Nova Lima. This highway crosses along Nova Lima western border, sitting on one of Quadrilatero Ferrífero bordering ridges. In the same decade, the road connecting Belo Horizonte to Nova Lima centre, MG030, was repaved and enlarged. As seen in the previous section, the improvement and construction of highways boosted the urban development along them. Today, condominiums dwellers share the road with iron-ore loaded trucks, generating conflicts regarding the maintenance of such roads – under the responsibility of federal or state government and damaged by heavy trucks, usually heavier than capacity allowed. In general, the bad conservation and bad signalization of roads in this region – and most of Brazil – means that heavy trucks offer great danger to small private cars in their everyday commuting.

Different to Pampulha and even more to Belo Horizonte, the government role in the urban development of Nova Lima was predominantly indirect. Direct actions targeted mainly the construction or improvement of highways. Those responded to regional or economic demands and not directly for encouraging urban expansion as in the case of Pampulha. Nevertheless, they have functional as the structural axis in Nova Lima's recent fragmented urban expansion.

The indirect actions of Nova Lima's municipality are mainly the attraction of investments through tax incentives and exemptions and the flexibility of urban regulations, increasing the competitiveness of the municipality within the metropolitan region.

In the absence of a *Plano Diretor,* under elaboration and negotiation since 1998 but only approved in 2007, the municipality's urban development initiatives and strategies were ad hoc negotiations with private developers[13] or through tax incentives. In order to attract the service sector, and as part of a strategic development plan, the municipality reduced the percentage charged over services (ISS – *Imposto sobre Serviços*) in relation to Belo Horizonte to increase investment competitiveness. Having been able to contain urban sprawl and the undesired kind of housing that follows industrialization – thanks to land property concentration -, Nova Lima's administration was interested in maintaining its environmental assets by attracting non-polluting activities, preferably associated with services and technology. Since the 1990s, when the mining companies announced the end of extraction in some mines, the municipality began to show increased

concern in finding a revenue substitute to mining, to which it is still highly dependent.

The development of fragmented new allotments in the last century was done mostly under the initiative of privates, as also happened in Belo Horizonte's first suburban occupation. What is different in Nova Lima is the dominant role played by the mining sector, since the nineteenth century and until nowadays, specially in the instalment of infrastructure and in the real estate market, as we shall see further. However, until the present, basic infrastructure has been a main issue in Nova Lima's expanded territory. While in the region of Pampulha the allotments from the same period have long been integrated into the city's services network, the fragmentation and isolation of Nova Lima's settlements have slowed down this process. Lack of basic services such as proper sewage collection, is until today one of the main issues of Nova Lima dwellers, not only in low income settlements, where this is a more common issue, unfortunately, but also amongst the high-income population in the condominiums and also at Vale do Sereno[14]. While in the first case, dwellers have become used to self-provision or negotiations with the mining companies, for the inhabitants of high-rise condominiums the lack of services becomes a more complicated problem to deal with.

4.3. Patched constellations

The patched territory of Nova Lima is formed by a constellation of categories often seen as opposites: urbanization, ecology and mining. The following section will present a – one of the many possible - history of their intertwinement. Although they seem like individual patches, the analysis will show that they are not accidentally sitting side by side, but are actually in relation to each other sharing the same infrastructures and the geographic conditions leading to their formation. The relations established between them are more often conflicting but at times symbiotic relations, but. Seeing them as a constellation allows not only a focus on things on space, patches and objects but mainly in the historical socio-economic and political relations established in their arrangements.

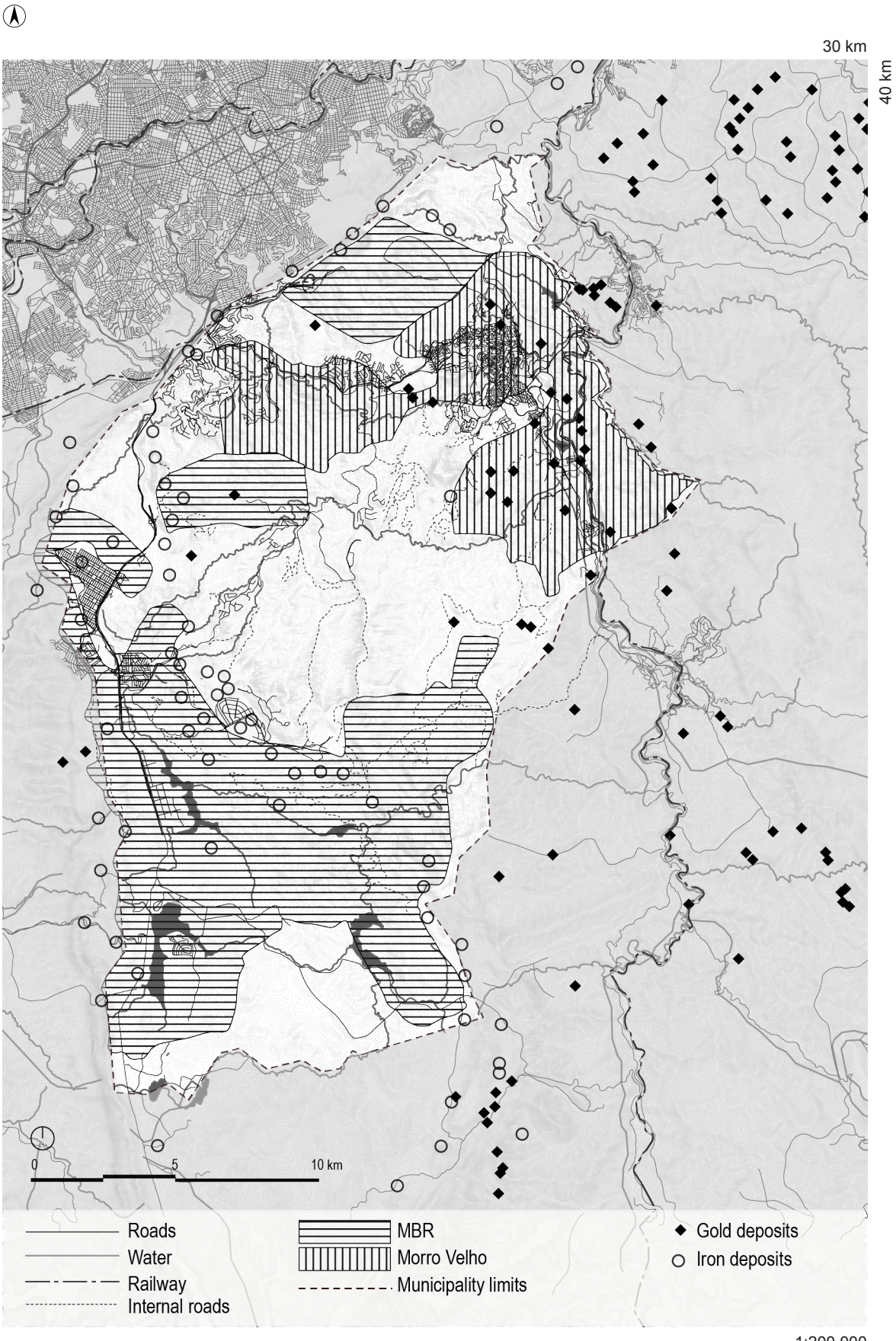
While Ouro Preto, the capital and centre of Minas Gerais colonial mining urban constellation, is exemplary of the type of urbanization in eighteen century Brazil, the inauguration of Belo Horizonte marks the inauguration of a new modern twentieth-century republic. In between those, geographically and also chronologically, Nova Lima's rise in the

nineteenth century epitomizes perfectly the intertwinement between urbanization and modern mining in this region. Its territorial history is intertwined with the history of the mine Morro Velho and the company Saint John D'el Rey Mining. In fact, the documents of the company's archives, held today in the Centro de Memória Morro Velho, are largely used as historical references of this city.

A significant change in this century, specially for urbanization and mining, was the implementation of the *Lei de Terras* (Land Tenure Law) from 1850. By this law, the colonial system of sesmarias – large portions of land given in concession to members of the Portuguese nobility during colonization – was abolished, allowing private ownership of land, and more importantly, its commercialization. In the *sesmarias*' [15] system enormous pieces of land in the hands of Portuguese families that were not yet duly occupied and unproductive, became now the property of the State, while the productive lands in concession became private property. Thus, the private ownership of land was only legitimate when some investment had made it productive. The state ownership of land, entitled terras devolutas, allowed state investment in agricultural or infrastructural projects, such as the construction of the capital – partly situated on terras devolutas –, railways and the establishment of agricultural colonies, as seen in the first episode. On the other hand, the legal commercialization of land allowed not only new forms of accumulation of capital by land possession and exchange but also facilitated the invasion of foreign companies who bought large portions of land from privates. This is particularly significant in Nova Lima, since the Saint John D'El Rey Mining controlled most of the municipality land for over a century. After the 1960s, when the company was split in two, a certain fragmentation of land took place – to be seen further – but land continues to be, until today, a monopoly of mining companies, which have been able to dictate and orchestrate Nova Lima's urban development. Although unproductive land was taken by the State, there were no obligations to private owners to make them productive. The ultimate result of holding private possession of idle land is its speculation.

4.3.1. Twentieth century urban patches

Despite sharing the same birthmarks with many other mining towns such as Ouro Preto, Mariana, Itabirito, Sabará and others, a number of particularities in Nova Lima's evolution process makes it an exceptional case. The once strong urban constellation formed around gold extraction practice and economy has been dissolved after the downfall of gold mining, the development of agriculture in other regions of the state


30 km
40 km
0
5
10 km
Roads
Water
Railway
Internal roads
MBR
Morro Velho
Municipality limits
Gold deposits
Iron deposits

1:200.000

and the transference of the State' capital from Ouro Preto to Belo Horizonte. Centuries later, while a privileged group of mining towns has been included in tourist routes, holders of memorable colonial art and architecture (Ouro Preto, Tiradentes and Congonhas mainly), others were left in forgetfulness. Amongst this last group some of them are still victims of the profound – and often silenced – transformation and degradation of their landscape and collective memory. Itabira, Itabirito and Mariana are examples, all within the *Quadrilatero Ferrífero* region. Some like Sabará, which municipality once included the Arraial de Bello Horisonte and Nova Lima, had extinguished the gold reserves already in the mid-eighteenth century and were not included in the iron extraction cycle due to its geology conditions, rich in gold but not iron. Except for a few heritage buildings, their connection to the mining past is very dim.

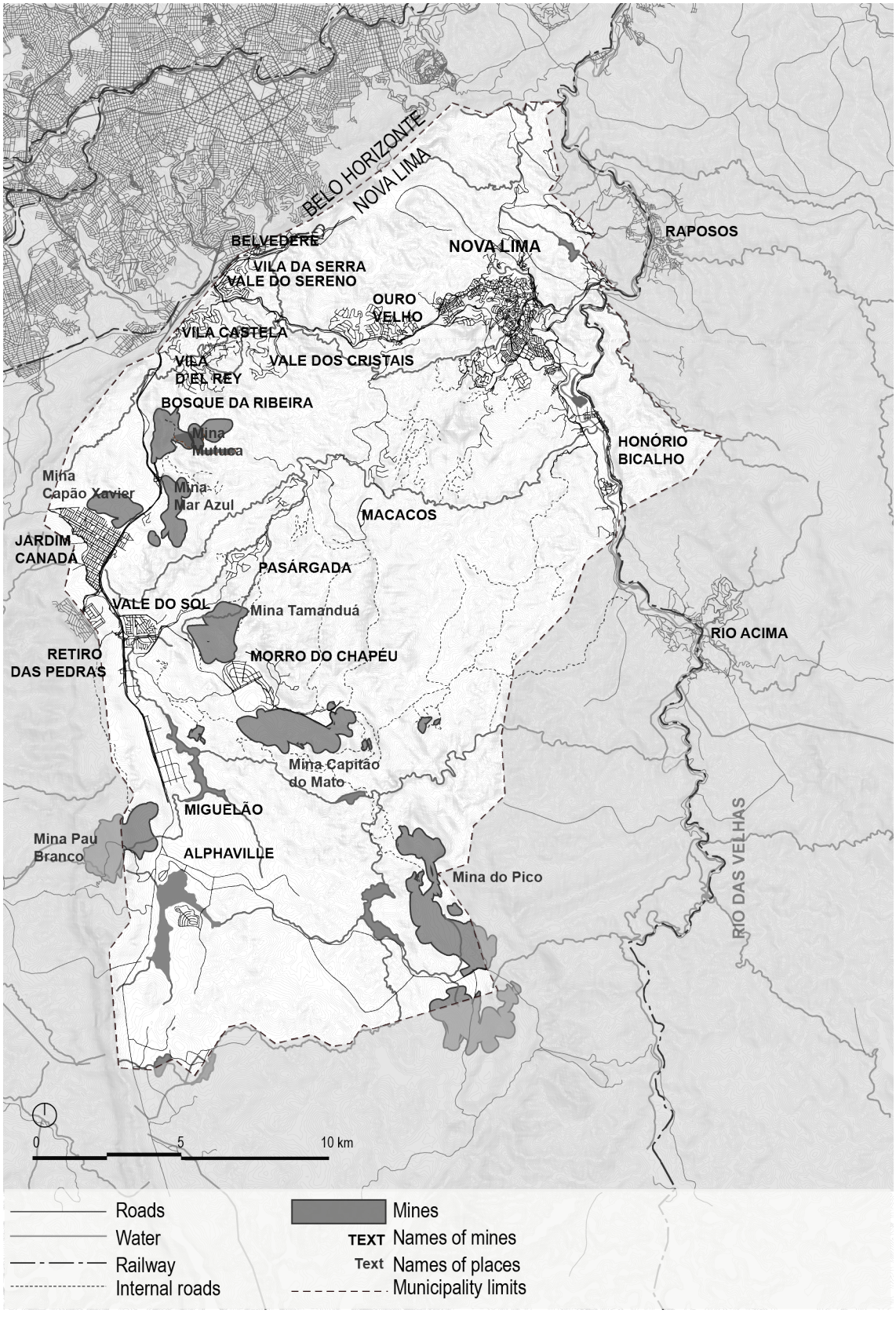
Not hosting any particular colonial architecture worthy of attention, Nova Lima would have fit therefore into the second group of towns, more specifically next to Mariana, Itabira and Itabirito. Its iron ore rich land continues to be explored until nowadays without a significant urban or demographic expansion – a condition that might be on the verge of change. However, a series of events and assets have placed Nova Lima in a different position, now under enormous urbanization and environmental pressures.

The municipality's conditions started turning in the first decades of the twentieth century when the mining scenario began to change, connecting Nova Lima more and more to the metropolitan network recently formed with the establishment of the new capital Belo Horizonte, which borders this municipality to the north. The exchanges related not only to the transport network, established by Morro Velho, but also to industry. According to Leonardos (1970, p. 276), studies were published abroad already in 1902, confirming the presence of large reserves of iron ore in Brazil, especially in the *Quadrilátero Ferrífero*,. Such studies supposedly influenced the acquisition, by Morro Velho under the superintendence of the British George Chalmers, of iron rich sites in the east portion of Nova Lima, increasing even more their already large stock of land. The beginning of iron ore extraction by Saint John Mining date from the early 1940s (ibid).

Until the 1950s Nova Lima's urban area lingered around its foundational core, with two other settlements close by, Raposos and Honório Bicalho, all with an economy and social dynamics intrinsically connected to gold mining and the Mina Morro Velho (Hollowood, 1955). From this moment onwards, new settlements began to emerge along a new highway at its western edge.

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Image 124:
Property of land in 1983 and the presence of mineral.s

Source: by author based on mapping done by the Plambel in 1983, retrieved from www.bibliotecadigital.mg.gov.br, and with data from rmbh.gov.br and CPRM


BELO HORIZONTE
NOVA LIMA
BELVEDERE
VILA DA SERRA
VALE DO SERENO
NOVA LIMA
RAPOSOS
OURO
VELHO
VILA CASTELA
VILA
D'EL REY
VALE DOS CRISTAIS
BOSQUE DA RIBEIRA
Mina
Mutuca
HONÓRIO
BICALHO
Mina
Capão Xavier
Mina
Mar Azul
MACACOS
JARDIM
CANADÁ
PASÁRGADA
VALE DO SOL
Mina Tamanduá
RIO ACIMA
RETIRO
DAS PEDRAS
MORRO DO CHAPÉU
Mina Capitão
do Mato
MIGUELÃO
Mina Pau
Branco
ALPHAVILLE
Mina do Pico
RIO DAS VELHAS
0
5
10 km
Roads
Water
Railway
Internal roads
Mines
TEXT Names of mines
Text Names of places
Municipality limits

The development of human settlements along new paths and roads is a common phenomenon in urbanization pattern since a long time (Panerai, 2006). However, rather than the incremental processes that were verified in the paths connecting the mining towns network since the eighteenth century, this was a fast, aggressive development and highly induced by State infrastructure. In Nova Lima, the new occupations were under the influence of large-scale mining and land property monopoly as well as a metropolisation processes. Therefore, large scale mining is the producer of large-scale urbanization processes as well. As mining technology improves, the efficiency of extraction is increased, contributing to the acceleration of changes in the landscape and consequently of urbanization processes.

The 1950s were a period of great change also for Saint John Mining which, at the end of the decade was split in two parts, in consequence of a project of nationalization of the extractive industry, which required companies to be owned by nationals[16]. The rearrangement resulted in two companies: The Morro Velho S.A., later bought by Anglogold Ashanti, concentrated in gold extraction and MBR, which later associated with Hanna Mining Co with iron ore mining. It was a period of economic challenges, leading the company to sell, in the years before the division, properties along the recently opened BR040 highway. This portion of land was poor in minerals, but on the other hand well located in terms of infrastructure (Pires, 2003). In short, it's other locational assets were exploited. A scenario triggering the transformation of Nova Lima's pattern of urbanization starts therefore to take shape: 1) a recently opened highway, connecting a previously inaccessible territory directly to Belo Horizonte; 2) portions of land poor in iron, therefore uninteresting to the mining sector but now highly valued for real estate; 3) economic crisis in mining, with a fall of gold prices and the opportunity to convert unusable land in real estate capital.

Since 1891 the first Republic constitution guaranteed the absolute ownership of property, which included underground mineral resources. During colonial times, until 1822, all underground resources belonged to the (Portuguese) crown, and during the monarchy (1822-1889) they were considered a property of the State and explored under concessions, as the one given to the Saint John D'el Rey Mining Co. The constitution of 1934 separated again the property of land to the property of underground resources. Until today, those belong to the State and the right to research and mine is granted through licenses and concessions. (Barbosa, 1994)

Since then, the national constitution has changed several times, so has the mining regulation. Fundamentally, land property and mining exploration are separated rights. While the priority of research and mining is given

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Image 125:
Urbanization and mining in Nova Lima

Source: by author with data from rmbh.gov.br and Google Earth

to the owner of the land, its ownership is not required for the resource extraction activity since the mining code of 1940 (Brasil, 1940, 1967). Therefore, mining companies often possess areas in which there is not yet a research or a mining concession but there might be in the future. The control of larger portions of land allows them however to do the necessary complimentary infrastructure investments to support the mines as well as limit human occupation as a mean to limit social impacts.

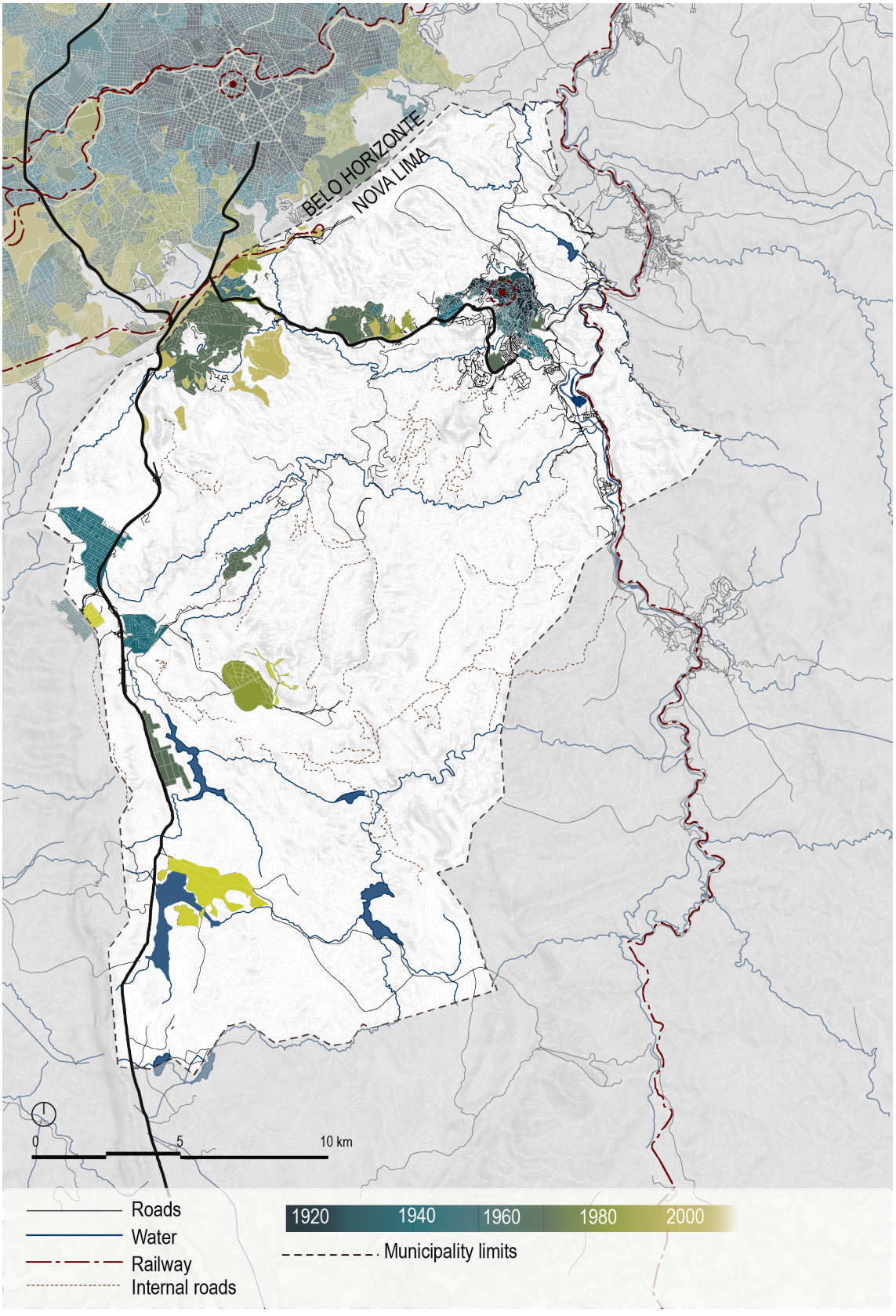
Until the 1950s, the retention of land in the hands of one owner had halted urban expansion in that direction. Historically, Belo Horizonte's growth had been, until then, to the north and west directions – in the direction of Pampulha (as seen in Chapter 3) due to a number of factors: 1) the fragmentation of land in those areas when compared to the mining neighbours to the east and south, Sabará and Nova Lima, respectively; 2) the governmental projects developed in those directions, namely Pampulha and the Cidade Industrial; 3) the natural barrier imposed by the Serra do Curral ridge, running in its south-east border, neighbouring Nova Lima.

The 1970s in Brazil was a period of economic expansion known as milagre brasileiro, having as consequence an intense urbanization with demographic growth in most Brazilian cities. In this decade Belo Horizonte and is metropolitan region saw an unprecedented growth of allotment approvals, the occupation of areas implemented decades before (like Pampulha) and, unavoidably, of favelas. The other side of the economic prosperity was, however, the increase of social inequalities as the richness produced was not distributed. In the following decade, known as 'the lost decade', the economic model based on strong state intervention, a model of substitution of importation and external deficit reached exhaustion, leading to a crisis that was not only economic, but intrinsically urban. The situation of the urban poor aggravated drastically, increasing the favelas, the amount of homeless and urban crime. By the 1990s, the urban crisis was installed, expelling the rich to the peripheries or secluding them in fortified enclaves.

Changes in the dynamics of the real estate market, local and national urban regulations, economic oscillations, and the ups and downs of the mining activity would jointly contribute to the new forms of urbanization in Nova Lima, happening from the 1950s. Those took place along the recently opened roads and took the form of alternative living close to nature. This movement intensified since the 1970-1980s in the form of patched enclaved condominiums, which are a structurally transformed version of the suburban pattern of '*Villas,*' inaugurated at the same time as Belo Horizonte's foundation, as we have seen in the previous chapters. However,

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Image 126:
Timeline of urbanization in Nova Lima.

Source: by author data from rmbh.gov.br and Pires, 2003.


BELO HORIZONTE
NOVA LIMA
0
5
10 km
Roads
Water
Railway
Internal roads
1920
1940
1960
1980
2000
Municipality limits





this time, as also in Pampulha, the suburban production of space is not by the 'keeping out' the poor from occupying privileged locations in the city, but by the voluntary self-isolation of the rich in private fortifications. Before Pampulha, the suburban allotments were mainly directed for the poorer population that could not afford prices in central and better infrastructure areas inside the inaugural urban core. In Pampulha, and also in the new condominiums of Nova Lima, a new form of suburban expansion emerges, with the self-isolation of the rich in privileged spaces outside the city.

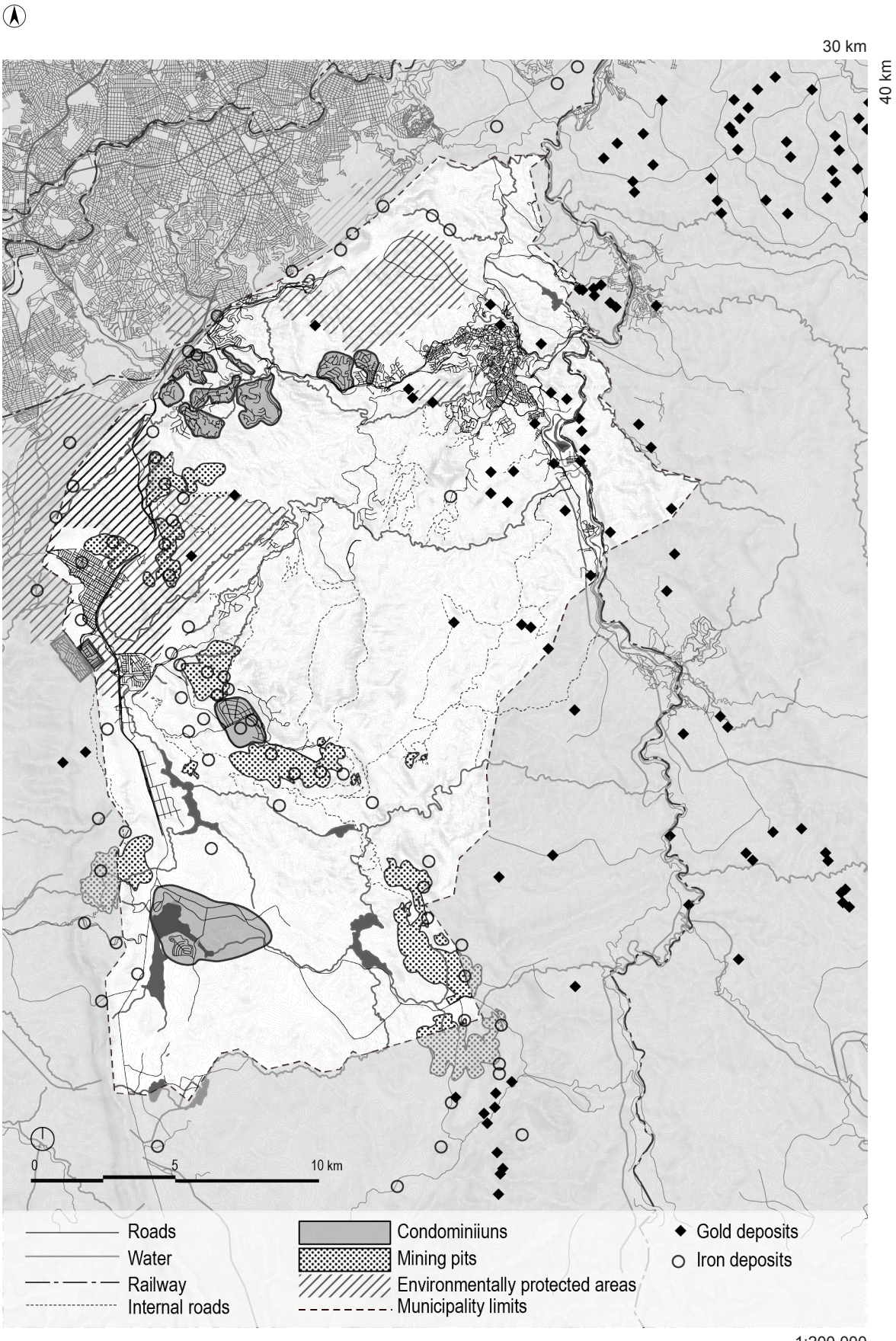
In the view of Mendonça and Perpétuo (2006), in this new form of peripheral production, the intensification of the social difference corresponds to the maintenance of the physical distance, with the expansion of the high-class living spaces towards the south of the metropolis, opposed to the historical poor periphery, to the north. What we see in the episode of Nova Lima, is a reproduction of the social difference already seen in the previous episodes of Belo Horizonte's spatial history, exposed in the last chapters. While the city's foundational core was intended to house the middle-class new citizen of the new republic, Pampulha was directed firstly as a weekend destination for the local emerging elite.

< Image 127: Real estate advertising for Vale do Sereno Source: epo.com.br, visited on March 2018.

In early 2000s, 46% of Nova Lima's territory still belonged to the mining companies: 130km^2 were property of Anglo Gold and 90km^2 of MBR (out of a total of 429km^2) (Mendonça & Costa, 2003). Therefore, monopoly of land 'reserved' high valued areas with a preserved exuberant nature, in the opposite direction of the 'poor' peripheries developed to the north and west of Belo Horizonte, attracted and boosted by the infrastructural investments made towards Pampulha, to the north, and the Industrial complex in Contagem and Betim, towards the west. The fragmented nature of small farming lands facilitated the development of many small-scale allotments in these regions. The lack of infrastructure – water, sanitation, electricity – guaranteed the low price of plots, becoming the only alternative to the poor.

As the high-income neighbourhoods in the central-south area of Belo Horizonte began to saturate, the real estate sector soon took advantage of the qualities offered by Nova Lima. The conditions presented – land monopoly and a green landscape - elevates the properties values, offering the dwellers the chance to distance themselves from the unwanted, while still maintaining distance from each other. It offers the illusion of prestigious isolation while maintaining the everyday urban connections to the main city.

< Image 128: View of Vale do Sereno. Source: epo.com.br, visited on March, 2018


30 km
40 km
0
5
10 km
Roads
Water
Railway
Internal roads
Condominiiuns
Mining pits
Environmentally protected areas
Municipality limits
Gold deposits
Iron deposits

1:200.000

The first gated communities, or condominiums,[17] emerged around the 1960s and 1970s. They approached 'ideal' environments, as they were basically for weekend homes. As such they exploited nature as a permanent consumption quality. This model of occupation has expanded significantly in the recent decades and has also changed its initial format (to be seen further). In this movement, there are two important discourses. The first, which was the first attractor, is 'green' and 'nature' as powerful strategies for real estate valuing. The second, most recent, and perhaps the most powerful, is the discourse of urban violence. Escaping the city (pollution, violence) naturally leads to the evasion into nature, to a 'natural environment'. Such discourse is responsible not only for the distancing of elites from the city, but mainly, for the enclaving with fences or even high walls, as in the case of Alphaville. (see further)

Besides being used by the real estate sector, ecology has also been incorporated by state planning tools. This is done through requiring a special environmental license for new allotments and by institutionalizing environmentally protected areas. In the view of Costa (2006), the real estate marked capitalizes nature reacting to the new ideologies of living standards, transforming the public use value of nature into exchange value for real estate developers, increasing the property value of the residential units around the reserves. (Costa, 2006). Although acknowledging that there are many more layers that can be added for explaining the cultural appreciation of nature in its relation to the urban, that go beyond the economic discourse, we agree that the 'green' discourse has been a powerful marketing tool for real estate developers acting in Nova Lima.

In the 1990s, with the urban crisis installed, the 'green' narratives are supplemented with the 'security' discourse. In many cities worldwide, the fear of violence and crime began to be used by diverse social groups to justify their withdrawn from the city as well as the use of technologies of exclusion. In the analysis of Teresa Caldeira (2000), it is not only violence and crime that are at stake in this transition, but more effectively, the discourse of crime (in her words, *'a fala do crime'*). Therefore, from this moment, the fear and the discourse of crime are effective in reorganizing the urban landscape and the public sphere. They also give new shapes and meanings to social interactions in the city, everyday more and more surrounded by walls.

This scenario gives space for the emergence of what she calls fortified enclaves: "privatized spaces, closed and monitored, destined for residence, leisure, work and consuming. They can be shopping centres, commercial and business compounds or residential condominiums. They attract those

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Image 129:
Urbanized areas, condominiums, protected areas, mining pits and presence of mineral deposits.

Source: by author with data from rmbh.gov.br and mma.gov.br and CPRM

who fear the social heterogeneity of older urban neighbourhoods and prefer to abandon them for the poor, the 'marginal', the homeless."[18] (ibid, p.11-12) The fortified enclaves are in fact a reproduction of patterns of differentiation and exclusion already well known to constitute the urban, however with new patterns and technologies.

Together, green and security have thus been used as strong marketing tools by real estate developers, the ones in fact shaping and dictating the aspirations of medium and high-income groups. In the condominiums of Nova Lima, horizontal or vertical, they sell the promise of a 'life quality' that cannot be found in the city. The increasing discontentment with 'big city issues' such as traffic, pollution, lack of public spaces for children, besides crime, have contributed to the creation of self-contained non-cities in which one can live in an artificial homogeneous society, by the exclusion of the different. The consequences of the ascent of fortified enclaves in the specific case of Nova Lima will be analysed thereafter. In these condominiums, discourses of 'escape from the city' and increasing violence co-exist with spatially discontinuous 'ecologized' city fragments, while permanent ecological preservation areas are side-by-side with decorative and artificial gardens. (Costa, 2006).

State induced urbanization: the contribution of urban planning

Urban planning at the metropolitan level has also contributed to the resultant pattern of urbanization in Nova Lima. Attempting to control the land allotments in the urban expansion areas the Plano de Uso e Ocupação do Solo da Aglomerção Metropolitana, elaborated in 1976 by the then metropolitan planning department, the Plambel (now extinguished), established some parameters to be adopted locally by the municipalities, based on an extensive diagnosis of the metropolitan dynamics and aiming to control the use of natural resources. In the empty interstices within the urbanized areas, a model of small size plots would incentive the allotment and densification of central areas. A higher offer of plots in infrastructured areas would guarantee low prices, accessible for the low-income population. (Plambel, 1976)

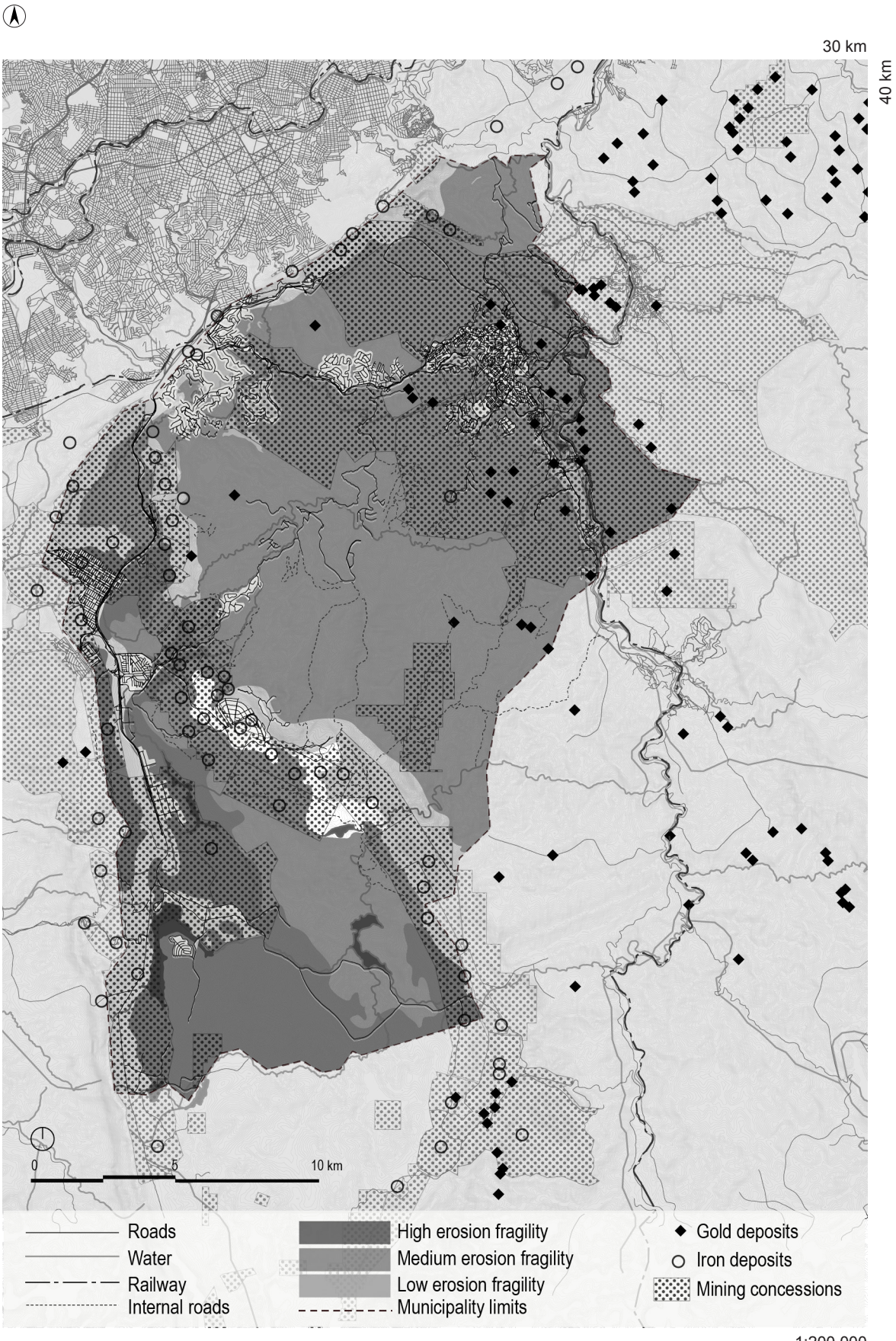
On the other hand, large plot models in the periphery would mean a higher cost and therefore lower demand of plots and low-density occupation. However, the results were the reverse of the expectations. The elevated land prices at the periphery meant a 'elitization' of land access, especially in Nova Lima, in the form of farmsteads and weekend homes. The demands of minimum urbanization standards defined by regulation had the intention of putting difficulties for new allotments, elevated the

costs of implementation, which were transferred to the price of plots, only aggravating the 'elitization' effect. (Costa, 2006) In addition, Nova Lima was seen by Plambel as a territory with important environmental assets to be preserved, not only for the pure sake of nature but because it hosts the most important water catchment areas which today supply the metropolis.

Until the late 1970s private land allotments were regulated by the Federal Decree-law 58 of 1937 (Brasil, 1937) which focused on the legal procedures concerning planning, registering and selling. No minimum standards of urban parameters were defined in this law, a subject to be covered by municipal laws. This was the case for example of Belo Horizonte, which launched its first allotment regulation in 1935, as seen in the first episode. In the absence of a municipal law, Nova Lima's new peripheral allotments followed the recommendations of Plambel. Although having no legal authority, their plan of occupation for the metropolitan region of Belo Horizonte was used by many municipalities as a guideline in the approval of new allotments. Its studies were also used in the elaboration of Belo Horizonte's first municipal zoning law of 1976. In the areas surrounding the city, many 'Urban Expansion Zones' were identified and categorized according to their physical characteristics and their occupation tendencies in Plambel's plans.

The areas at the borders between Belo Horizonte and Nova Lima were considered as ZEU5 (Zone of Urban Expansion - *Zona de Expansão Urbana* 5), in which minimum plot areas of 1000 or 2000 m^2 were recommended. From the original text: "They [the expansion zones] were allocated aiming to supply the demand of settlement areas for the high-income population, and at the same time, protect the basin areas of artificial lakes in the agglomeration, or to allow a parcelling more adequate to steep topographies"[19] (Plambel, 1976, p. 151). The uses allowed were only residential and local institutions (such as churches and schools), which reinforced the segregation pattern.

The areas around the MG030, the highway connecting Belo Horizonte to Nova Lima core, were assigned as ZEU2, to which a denser urban occupation was predicted with a minimum plot size of $360m^{2,}$ corresponding to the same parameters applied in Belo Horizonte. This model of settlement was assigned to some internal voids in the urban agglomeration, close to employment areas. The areas around the BR040, further south, were not included in this zoning, at the moment not yet considered as a meaningful expansion zone of Belo Horizonte. The allotments there developed followed therefore the same recommendation of large plots, targeting on the market of elite weekend occupation.


30 km
40 km
0
5
10 km
Roads
Water
Railway
Internal roads
High erosion fragility
Medium erosion fragility
Low erosion fragility
Municipality limits
Gold deposits
Iron deposits
Mining concessions

1:200.000

Soon later, the Federal Law 6766 of 1979 was launched regulating land allotments, setting minimum standards and urban parameters. One of the most impacting features of this law, for Nova Lima allotments at least, was the obligation of dedicating 35% of area for public areas and public equipment's[20], which implied that the streets inside each allotment were public and restraining public access through gates becomes therefore, from this moment, an illegal practice. The previous regulation, of 1937, only mentioned that the access ways and voids[21] were not transferable, meaning that they could not be sold (legally). In face of the increase of condominiums in the last decades, in 2017 several articles were modified through the Law 13.465 in order to regulate the situation of closed communities. The 8th paragraph of the 2nd Article prescribes the controlling of access in allotments, to be regulated by the municipal government, being forbidden the impediment of access to pedestrians and vehicles conductors, if properly identified and registered in the allotments visitor's book.

Another significant change was the prohibition of allotting areas with declivity higher than 30% and in geologically unfit areas. Many allotments of Nova Lima would therefore not have been possible after 1979, avoiding the erosion of soil, land sliding and all the environmental damages they caused. Some of these areas of high declivity, approved before 1979 but not fully occupied, are now been reconverted to high rise occupation, which only aggravates the situation. In 1983 the municipal Law 1068 regulated the use and occupation of soil in Nova Lima, reiterating the determinations made by Plambel for this region: a low density exclusively residential occupation, with local institutions. (Nova Lima, 1983).

Spatial results

The exceptional urban expansion in Nova Lima's territory, detached from the natural growth of its urban core, can be divided in three groups and a few of exceptional cases. Their distinction is related to different 'generations' of occupation, each deriving from different motivations and generating different urban configurations. Although most of them belong to the same type - low rise, low density, high class residential gated neighbourhoods – they have particularities distinct enough to be divided in two or three different kinds of occupation. Although there is a tendency of locational clustering, due of the age of occupation and the ground conditions, sometimes there are not clear borders amongst the groups.

The pioneers

The first group, named by Luciana Andrade (2001) as 'the pioneers' bought properties in the region, serving mostly as an urban refuge for weekend

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Image 130:
Erosion fragility in Nova Lima, mining concession areas and presence of minerals.

*the mining concession areas are areas in which mining activity has been authorised legally. They can be past, present or future mining activities.

Source: by author based on mapping done by the Plambel in 1983, retrieved from www.bibliotecadigital.mg.gov.br, and with data from rmbh.gov.br and CPRM

activities, attracted by the quietness and nature offered. Conceived and sold as regular allotments and not yet as closed condominiums, they began to be approved in the 1950s but were only occupied from the 1970s. Estância Serrana was the first allotment in the Mutuca Valley, between the two highways BR040 and MG030. It was implemented by the German steelwork company Mannesmann in the 1950s to house their higher rank employees (Costa, 2008) . It was for years known as *'chucrute'*, Portuguese for sauerkraut, in reference to the many inhabitants with a German nationality.

From the 1970s the Mutuca Valley nucleus expanded with the implementation of Estância Del Rey, Vila Del Rey I and II, Vila Verde, Bosque da Ribeira, Conde, Vila Castela, Glebas Reais and Vila Campestre. Very close to Belo Horizonte, with easy access from the newly implemented BR040, these started to become an alternative to live outside the city. (Perna, 2012). Some of them were built in a model associated with country clubs, in which the ownership of plots was associated with a club membership. Despite the proximity of the two roads, their implementation in the valley provides the quietness and privacy desired, with the benefit of accessibility.

They are known as the pioneers because in most of these allotments, approved before the law of 1979, plots were sold without any infrastructure: water, sewage or electricity. Gradually, those were achieved thanks to the efforts of the owners through the community associations formed, first by their own investment and provision and later by demanding to the local authorities. The demand for typical urban infrastructure started to increase as more and more the weekend refuges started to become permanent residences.

The fact that they have been ignored by Nova Lima's municipality for many years and having paid for their own infrastructures – some neighborhoods still don't have public garbage collection or public sewage collection for example – are some of the many arguments of these communities to be allowed to install gates and control access. On the other side of the spectrum, many peripheral allotments, not only in Nova Lima but throughout the entire metropolitan region were also divided and sold without any infrastructure as to keep investments to a minimum. However, the poorer population which occupied the cheaper allotments did not have the means to build their private infrastructure and had to wait for decades until municipal provision. It was the case for example of the neighbour Jardim Canadá, to be here later exposed.

According to Andrade (2002), until the 2000s many of the 'condominiums'

still didn't have water provided by COPASA, the State sanitation company, and still had to count on wells. In Morro do Chapéu, a gated community inaugurated in the 1980s, the water is provided by Vale S.A., the neighbouring mining company, establishing a mining-condominium symbiotic relation. Still according to the Andrade, in this complex relation to the municipality, there is a tacit agreement between them: the municipal authorities close their eyes to the polemical gates while not investing in the condominiums, transferring the responsibility of infrastructure and public spaces maintenance to dwellers.

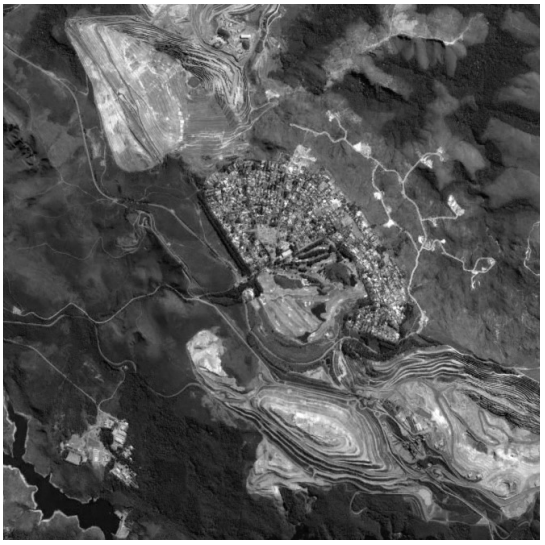
With a few exceptions, most of the plots of these condominiums are bigger than 1000 m^2, some of them reaching 2000, 2400 m^2. The pioneer allotments are easily recognised by their topographic implementation and architectural types built. In their majority, they are well inserted into nature with very little deforestation. The houses, mostly built in brick and wood with tiled roofs, occupy smaller portions of the plot, mingling well with nature.

Another cluster of this type of pioneer allotments has been formed to the north of MG030, between this road and a nature reserved area called Mata do Jambreiro, privately owned by Morro Velho / Anglogold Ashanti. The first was the Ouro Velho Mansões, approved in 1975, which despite the elite occupation and the gates installed in the last decade, for security reasons, still calls itself a *'bairro'* (Portuguese for neighbourhood) and not a *'condomínio'*. Others that came after it were Residencial Sul, Ville de Montagne and Bosque Residencial Jambreiro. Their position along the MG030 meant that they are intertwined with other lower income allotments, commercial and service areas. When driving along the road, only the last are perceived while the condominiums are tucked in the valley. The character of this road has been changing a lot since the last developments in the proximity of Belo Horizonte.

Perna (2012) and Andrade (2001) noticed the change in character of these pioneer allotments and dwellers during the last decades. The expansion of the metropolis, the increasing congestion of traffic and a different economic climate made owners turn the condominiums houses in their permanent living. This has increased the demand of services and commerce in the region and on the access roads, making impacts in the region as a whole. Being forbidden inside the enclaves, the services have consequently spilled over elsewhere. A clash between pioneers and 'new comers' took place. They have indeed very different motivations for living in these areas. While the first were attracted by a quality lifestyle close to nature, the others are mostly motivated by the security provided, although living close to nature



Jardim Canadá. Source: Google Earth, 2018



Morro do Chapéu. Source: Google Earth, 2018

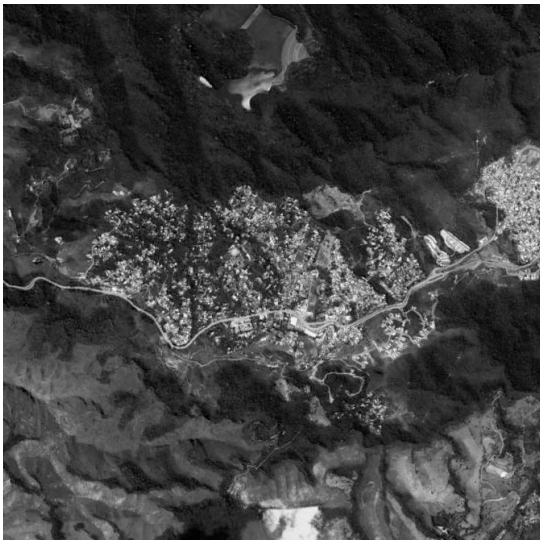


Retiro das Pedras and Vale do Sol. Source: Google Earth, 2018

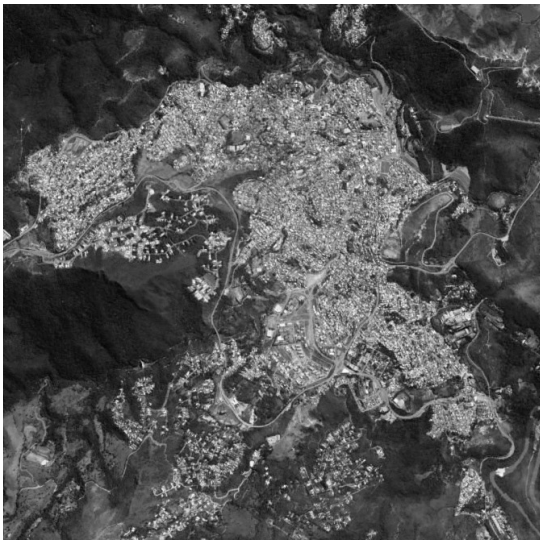


Alphaville. Source: Google Earth, 2018

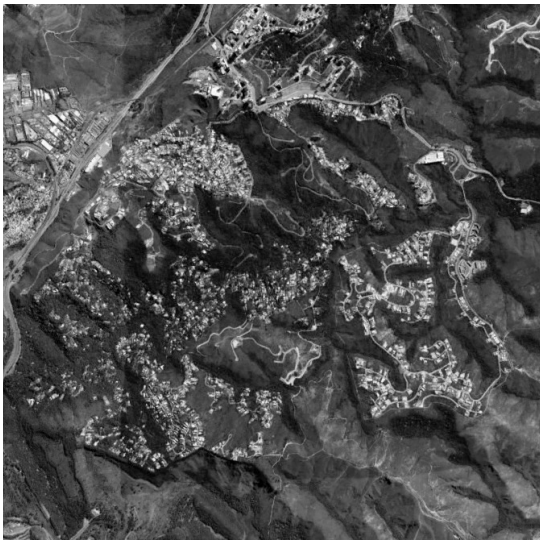
1km 2km



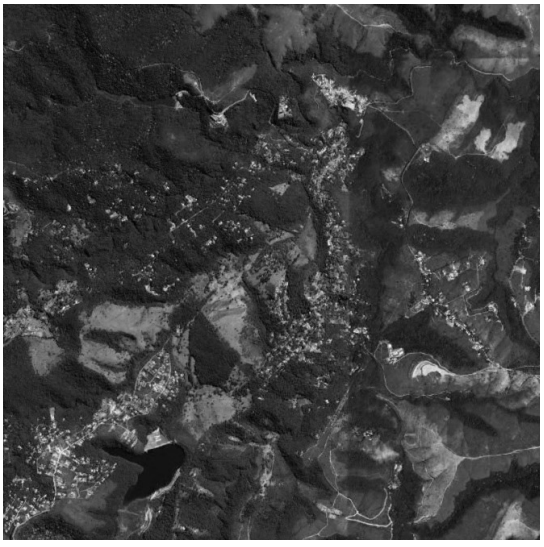
Settlements along MG030. Source: Google Earth, 2018



Nova Lima's historical nucleus. Source: Google Earth, 2018



Vale dos Cristais and Vale do Mutuca. Source: Google Earth, 2018



Macacos. Source: Google Earth, 2018

2km

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Image 131:
Aerial view of Nova Lima's various types of settlements.

Source: Google earth 2018

and lifestyle are also listed as motivations (Andrade, 2001). Possibly there is a class differentiation amongst the groups which make the first label the last as 'the new rich'. (ibid) In the last decades, the value of the plots has been increasing as demands increases despite the still large offer in the region as a whole, which brings an even more 'eliticized' group.

Implemented in steep valleys, these settlements present open meshes of streets in conformity with topography, but in some cases resulting in very steep plots and a very inadequate implementation of houses (See Images 131 and 137). In the geomorphological analysis made by Perna (2012) the combination of steep plots in which cuts were necessary and a fragile soil was disturbed, has resulted in dangerous landslides and soil erosions highly prejudicial to the local environment.

In a different situation, but still belonging to the same groups are the condominiums Retiro das Pedras[22] and Morro do Chapéu, also implemented around the 1960s-1980s (See Images 131 and 141). Although they also started as weekend homes with the ideal of nature, they were already conceived as self-enclosed condominiums, targeting a more exclusive group. Both allotments are equipped with common clubs and recreational areas and even a golf course (Morro do Chapéu) and a private chapel (Retiro das Pedras). Occupying small plateaus along the BR040 ridge allowed these allotments to have also self-enclosed, compact meshes, differently from the open fingers presented by the last presented.

The Retiro das Pedras was developed by a private owner, a local journalist called José de Araújo Cotta, who bought the land from the Saint John D'El Rey Mining in 1954. His dream was to make a cinema studio, but the project failed so he started the condominium construction in 1954 and inaugurated in 1957. The narrative produced by the community claims it was the first horizontal condominium in Brazil, having being inspired by Juscelino Kubitschek's courage. All the infrastructure was provided by the developer as well as a large investment in gardening and embellishment.[23]

In both cases, the close proximity with mine pits and mining influence areas means that they have a special relationship to mining companies. At Morro do Chapéu, some of the water for the condominium is provided by Vale, the owner of the neighbouring mine. The golf course has been recently expanded and the access road has recently been improved by investment of the same company. This shows a novel model of private urbanization configuration, in which private companies are not only the perpetuators of urbanization but act as urban managers in everyday necessities.

Edge city inspirations

The association of another mining company, the MBR (Minerações Brasileiras Reunidas, since 2007 totally owned by the giant Vale) with real estate developers, inaugurated in 1998 a totally different concept of condominium to Nova Lima. It was however, inspired by a model already operating in São Paulo since 1973, named Alphaville, which is a model itself inspired in the New Towns movement. However, in the view of Peter Gotsch (2010), privately-developed new towns is something totally unexpected, as the classical 'New Towns' (in the European world, I add) are planned by public authorities. This is definitely not the case in Brazil. To understand the Alphaville Tamboré, in São Paulo, Gotsch has argued that it was necessary to go beyond the "accepted duality of the planned (public) and the self-organized (individual, society) with a third dimension: the private (corporate) sector" (ibid, p. 26) In the case of Alphaville Belo Horizonte (although located in Nova Lima, this is how it has been named), another layer of complexity must be added, since it is not a regular cooperation between real estate developers, but includes also a resource extraction company which is now venturing in another branch of economic activity.

São Paulo's Alphaville started as a business compound and later developed to accommodate housing embracing the live-work-play concept of the Edge Cities (Soja, 2000). On the contrary, Belo Horizonte's case was developed as a low-rise residential condominium, supported by local services. Although most of its marketing was developed under the theme of living and working in the same space, having being conceived as a city (de Moura Costa & de Rezende, 2004), its commercial areas have never developed according to the project's expectations, so most of its dwellers still have to commute daily to Belo Horizonte, 25 km away, for jobs and services. The condominium was launched using the shopping mall strategy of having important anchors as to attract new investors. In this sense, it was supported by the inclusion of a large sports club, Minas Tênis Clube (another unit of the same inaugurated in Belo Horizonte's core in the 1930s), a private research institute, Fundação Dom Cabral and a private secondary school.

As in Pampulha, Alphaville takes advantage of the landscape formed by an artificial lake, Lagoa dos Ingleses (See Images 131, 143 and 151), created in 1904 by Saint John Del Rey Mining, as part of the hydro-electrical system built for the gold extraction. The land, bordering the BR040 highway at the meeting of BR356 going to Ouro Preto, belonged to the associated mining company, which reconverted unused mining land for

real estate development. The enterprise was launched with five low rise condominiums, each surrounded by high walls and a compound of row houses (called town-houses), which was a novelty in Belo Horizonte's real estate market. The commercial area, named Alphaville Mall, and the main roads between to the condominiums have public access. However, the access to the gated condominiums, locally called *'Residenciais'*, is highly guarded with gates, security guards and cameras. Entrance is only authorized to dwellers, registered domestic servants or guests with the authorization of dwellers, after presenting identification for cadastre. The 'public' roads between them have the aspect of a dystopian dream, with walls at both side and no sidewalks, but impeccable gardens along walls and road.

In the last decade, new additions have been made to the enterprise: a hotel, a new allotment and strangely, three groups of high-rise residential condominiums forming a total of 10 towers (groups of 2, 2, and 6) with a total of 564 apartment units. The towers produce an unusual view as verticalization is normally associated with urban density. They are instead standing alone in the landscape surrounded by nothing but mining pits, fields and the low rise Alphaville itself. They are the result of the hybridization of the high-rise apartment mode of living in dense urban settings with the suburban living close to nature with panoramic views.

> Image 132: View of the Mutuca Valley. Source: by author, 2017

The surveys done by Rezende & Costa (2004) have revealed that, although 90% of Alphaville's original 1545 plots had been sold even before its launching, around 51,7% percent of them were bought by investors with no intention of living. In 2004, 6 years after inauguration, there were only 42 families living in the condominiums and 86 in the town-houses. Despite the vacancy, the plots were sold and have therefore absorbed the surplus savings in the capital market. Although until today there are still many empty plots in Alphaville and other condominiums in Nova Lima a new allotment is being developed at the lake borders, the Costa Laguna and even more ambitious plans are foreseen for Alphaville.

Recently, the Alphaville Belo Horizonte business has been bought by a group named CSul, which consists of a giant consortium of real estate developers which include contractors and companies from the financial sector. The company has developed a very large masterplan for the area, commissioned to the renowned urbanist, former Curitiba mayor Jaime Lerner. According to them[24] the CSul idea is based on the New Urbanism concept "having as main characteristic the conception of sustainable and dynamic urban spaces, were real estate developments live in harmony with commercial developments of service and leisure.[25]" The idea is again

> Image 133: View of settlements along the BR 040. Source: by author, 2017









anchored on the "working, living, leisure" concept, in which its population can enjoy "without having to face the discomfort of the great commuting in the chaotic traffic of the big cities"[26]. The project finds support in the recent Metropolitan Plan developed by Belo Horizonte's metropolitan development agency (2014), which have suggested the region of Alphaville as a potential centrality in a poly-nucleated model of metropolis in formation in Belo Horizonte. Although the new developments in Alphaville are marketed as a self-sustaining working and living place which eliminates commuting, placing the area as one of the centres in a poly-nucleated system implies the connectivity between centres rather than its isolation. The project is currently in the process of obtaining the necessary environmental licensing – which assesses sustainability and environmental impacts – and its implementation is still uncertain.

At the turn of the twentieth century, another condominium of this type was developed in the proximity of the MG030 nucleus, repeating some of the patterns seen in Alphaville, named Vale do Cristais. It was developed by another mining company, Anglogold Ashanti (the other branch in the division of Saint Jonh Del Rey mining) in association the engineering and construction branch of Odebrecht. It was again the case of the reusing of land not suitable for mining, the 'second harvesting of gold' as it has been defined by the developers (Mendonça & Perpétuo, 2006). It was also pioneer in combining living, working and leisure in the same place, although, again, the 'working' part of the formula doesn't work entirely. Built before the towers of Alphaville, Vila dos Cristais included, besides 577 plots for single family houses, 12 apartment towers, inaugurating, in this region, the urban vertical lifestyle amidst nature. However, here nature is included as a panorama to be seen from the window and not to be experienced daily, as the case at the pioneer condominiums. For that aims, it also included the creation of a private nature preservation area (named RPPN – *Reserva Particular de Patrimônio Natural*), which aimed to guarantee the environmental quality of their product, and the 'consumptive value' of nature intact.

< Image 134: The construction of a new condominium close to Vale do Sereno. Source: by author, 2017

From another angle, this could be seen as strategy to institutionalize the protection of a private area, avoiding any risk of having undesired neighbours in the future) and therefore guaranteeing the "definite view" promised for property buyers. The inclusion of the private reserved area is used as a marketing tool for the condominium, as to fulfil the desires of living close to nature, also guaranteeing its value in the long run. From the institutional use predicted, only one was implemented, a very large private high school, which supply the demands of many families who have moved

< Image 135: Mina Capão Xavier in the foreground and Jardim Canadá in the background. Source: Claudia Almeida, 2018

to this regional lately and don't wish to make use of Nova Lima's public educational system. It is interesting to notice that the urban regulations at stake only allowed low rise, low density, single family houses. For the viability of Vila dos Cristais, the law was changed punctually to that area, by a decree by the executive power. This is an example of the flexibility of urban regulation in Nova Lima, which acts according to individual interests: the developer on one hand and the taxes revenue increase on the other. It makes Nova Lima part of global neoliberal urban project, which is based on an urbanism by negotiation rather than the following of masterplans.

Recently, another condominium, named Quintas do Sol, has been developed in the lands and with the participation of Anglogold Ashanti, on the MG030 axis, very close to Nova Lima core. In these three last cases, we have seen mining companies acting as real estate developers. Today the real estate activity is listed as one of Anglogold Ashanti business, besides gold extraction, sulfidic acid and energy. In Nova Lima, the company owns around 6.7 thousand hectares, out of the 21.6 thousand in the states of Minas Gerais and Goiás. Recenlty, the company has developed a Plano Estratégico de Gestão Imobiliária, to manage properties not used in their operations. In Nova Lima, 55% of their property are environmental preservation areas, while only 20% are operational areas. The remaining 25%, 1,675 hectares, is therefore available for real estate development as well as social projects. In 2017, 1,5 million square meters – that is 150 hectares, only 2,2% of their property - were donated to Nova Lima's municipality, for the construction of social housing and the regularization of settlements in occupations. (Anglogold Ashanti, 2017).

Otherness

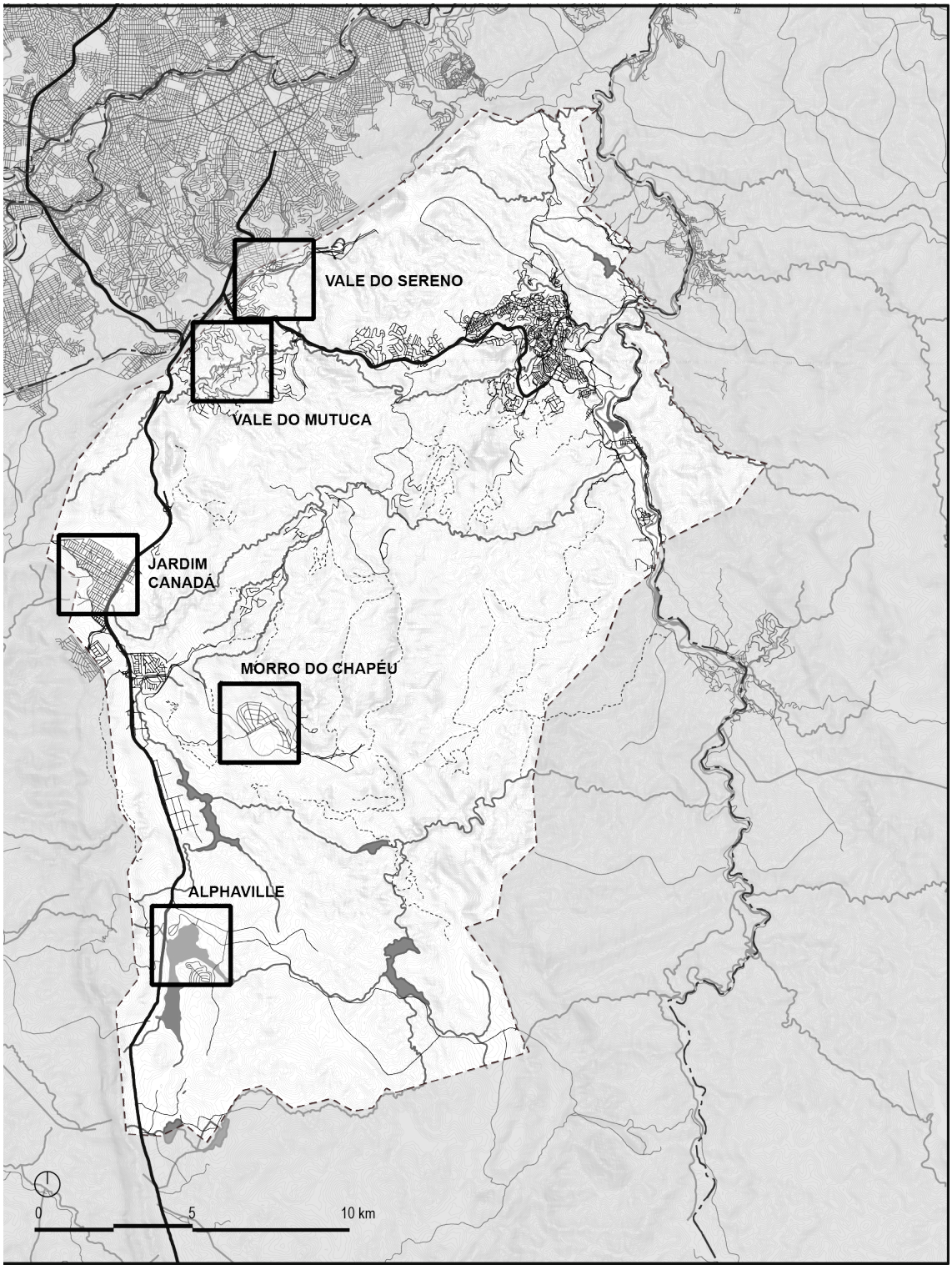
On the other hand, the fragmented urban expansion of Nova Lima has not been made of fortified enclaves only. In Brazil, the elites carry with them the habit of maintaining domestic services. Their lifestyle and the type of houses built depends on the daily or weekly work of maids, babysitters, gardeners, swimming pool cleaners, builders, etc. Also, as more and more people are making the condominium houses their permanent home, the demand for high standards services and shops also increases. This implies the transformation of the landscape, not only at the places where the condominiums are placed but in the whole region, more intensively along the access roads. As happened in the foundation of Belo Horizonte, and later in Pampulha, the pioneer installation of the elite reverberates in the attraction and settlement of lower (or no) income groups who accommodate in whatever space is left over.

One of the exceptions within the condominiums is Jardim Canadá, an allotment developed by the Saint John D'El Rey mining company with the Morro Velho company, at the time as its subcontracted branch. As we can see in this case and in the previous section, acting as real estate developers is not a novelty for this mining company, which had developed most of Nova Lima neighbourhoods already since the 19th century.

The allotment was approved in 1958 targeting industrial workers for which transport would be facilitated through the recently paved BR040, connecting the area to the also recently created Cidade Industrial, in Contagem. Public transport was however not offered. Workers would be picked up and delivered by company busses, a practice that is still common. Interestingly, the allotment had no apparent association with the local mining workers (Pires, 2003). However, it did not have the same success as its neighbour Retiro das Pedras, inaugurated in the same year. While the latter was targeted to medium and high classes, providing the necessary infrastructure and was, most importantly, fenced, the works in Jardim Canadá were not completed and the large majority of plots were not sold. As a result, the allotment was subjected to intense illegal plot subdivision and occupation until the 1990s. Also presenting a slow occupation, Retiro das Pedras was also not fully occupied until the mid 1970s. However, its territory and borders were highly controlled by its owners, what did not happen in Jardim Canadá.

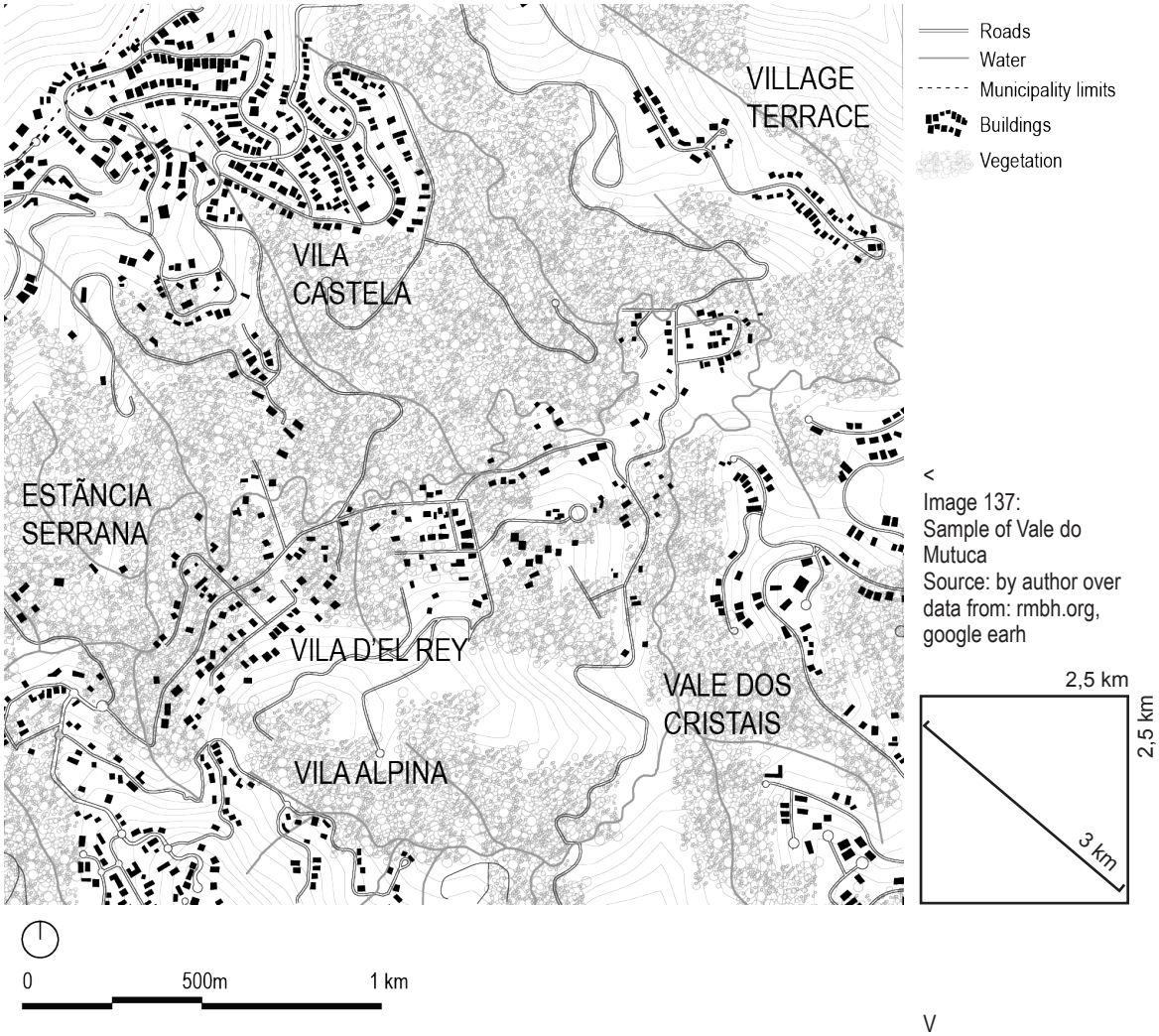
From the 1990s, with the intense growth of condominiums along this axis, the neighbourhood began to attract all kinds of services, from shops for food to construction materials, directed to the transit population of the bordering highway. Later, the municipality offered tax incentives for small industries to be installed there, as there were still a great number of plots available at a reasonable price and size. Today, Jardim Canadá is a hybrid place, with two economic circuits: an exclusive luxurious market for condominium dwellers with metropolitan characters and a simple, low income, local commerce for its dwellers.

In the recent decades especially, as the high-class population of Nova Lima has increased, the commercial activities and services in Jardim Canadá have transcended supermarkets and furniture shops and have expanded more and more towards the entertainment sector. The area has become popular for the instalment of "hipster" artisanal breweries, as incentives for small industries are also offered. This has attracted a number of beer / rock festivals to the area, where large public / empty areas are available. It is also a hot spot for events, parties and wedding venues, activities which have been expelled from Belo Horizonte, due to strict noise control municipal



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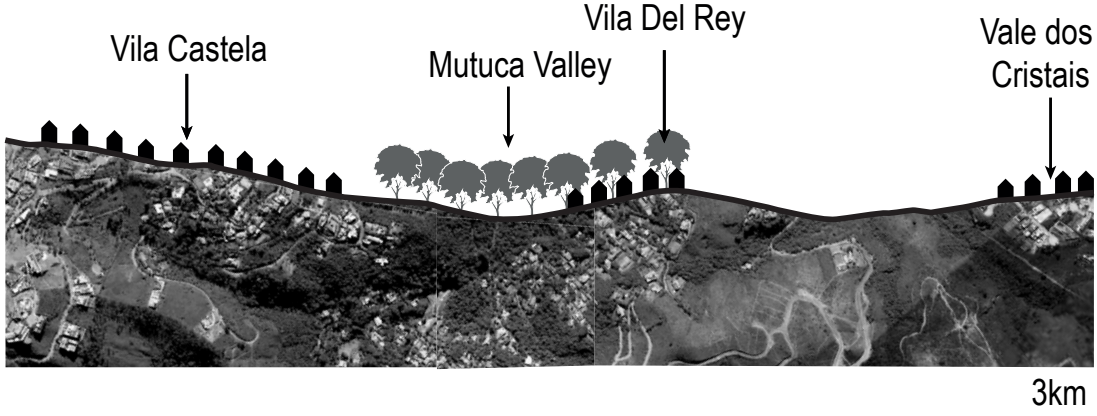
Image 136:
Key map of analysed frames
Source: by author over data from: rmbh.org, google earh



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Image 137:
Sample of Vale do Mutuca
Source: by author over data from: rmbh.org, google earh

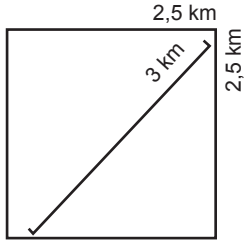
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Image 138:
Section of Vale do Mutuca.
Vertical scale: 1:1
Source: by author, data from rmbh.org.br, google earth





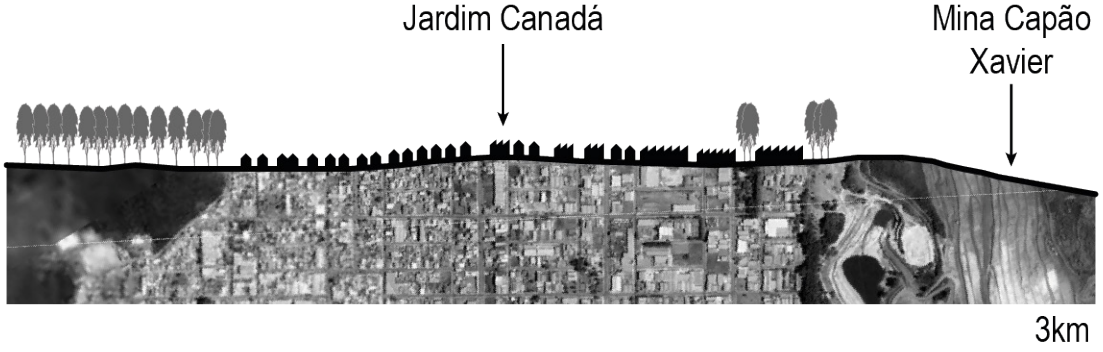
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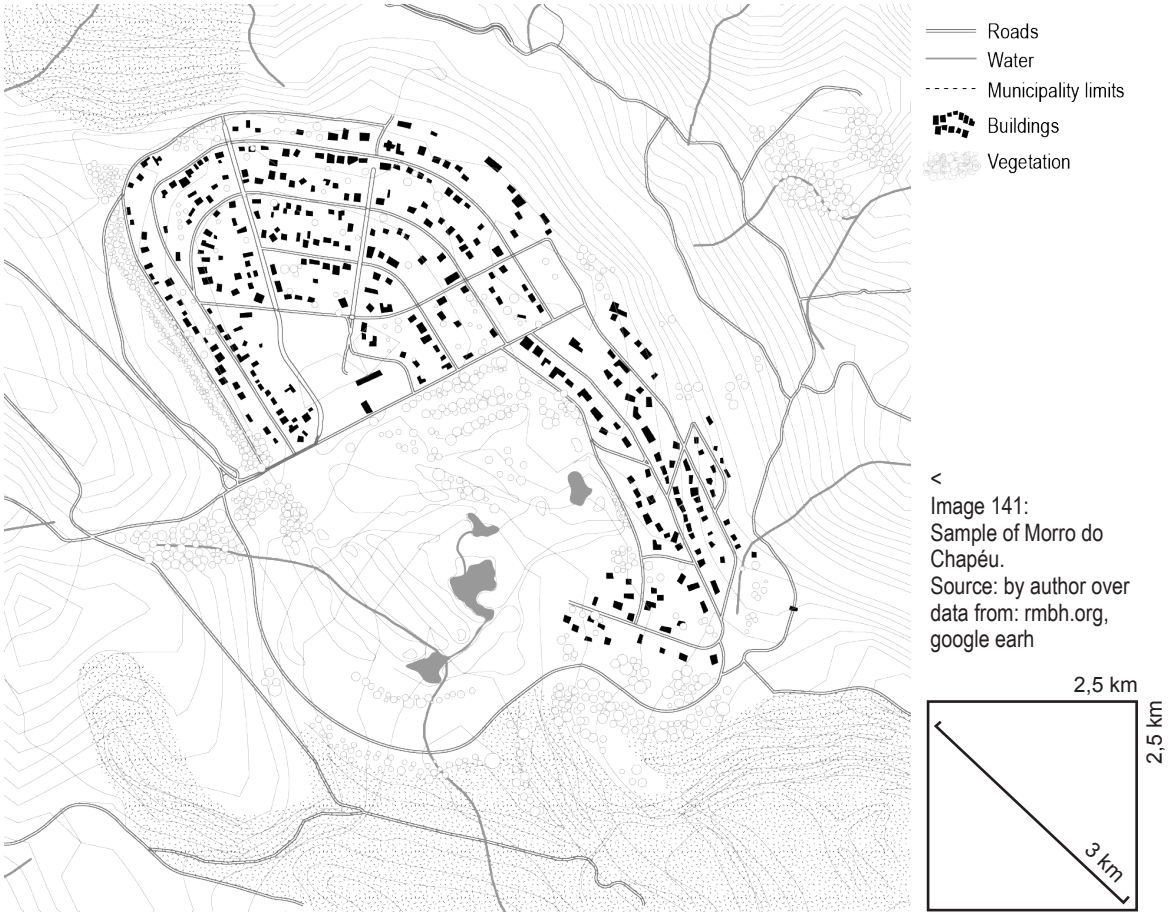
Image 139:
Sample of Jardidm Canadá
Source: by author over data from: rmbh.org, google earh



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Image 140:
Section of Jardim Canadá
Vertical scale: 1:1
Source: by author, data from rmbh.org.br, google earth



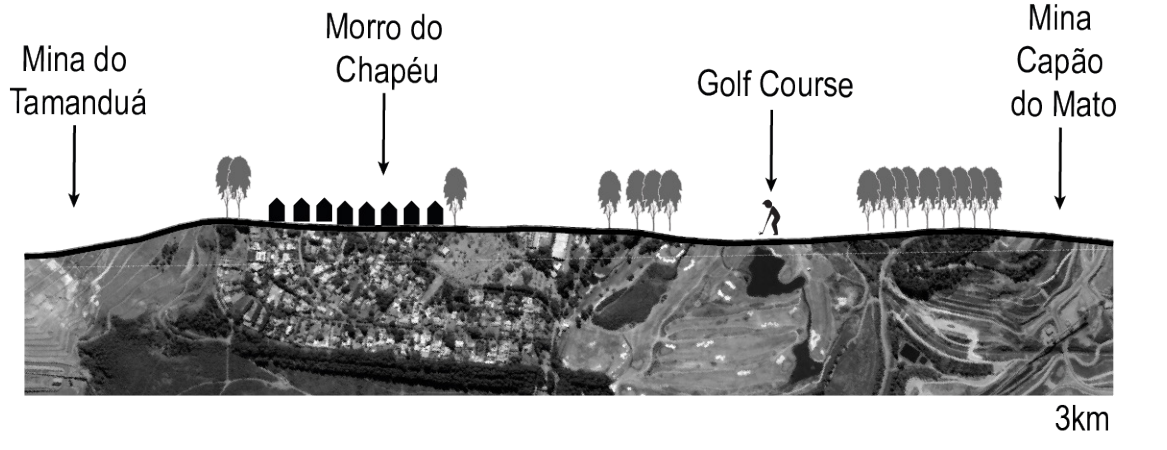


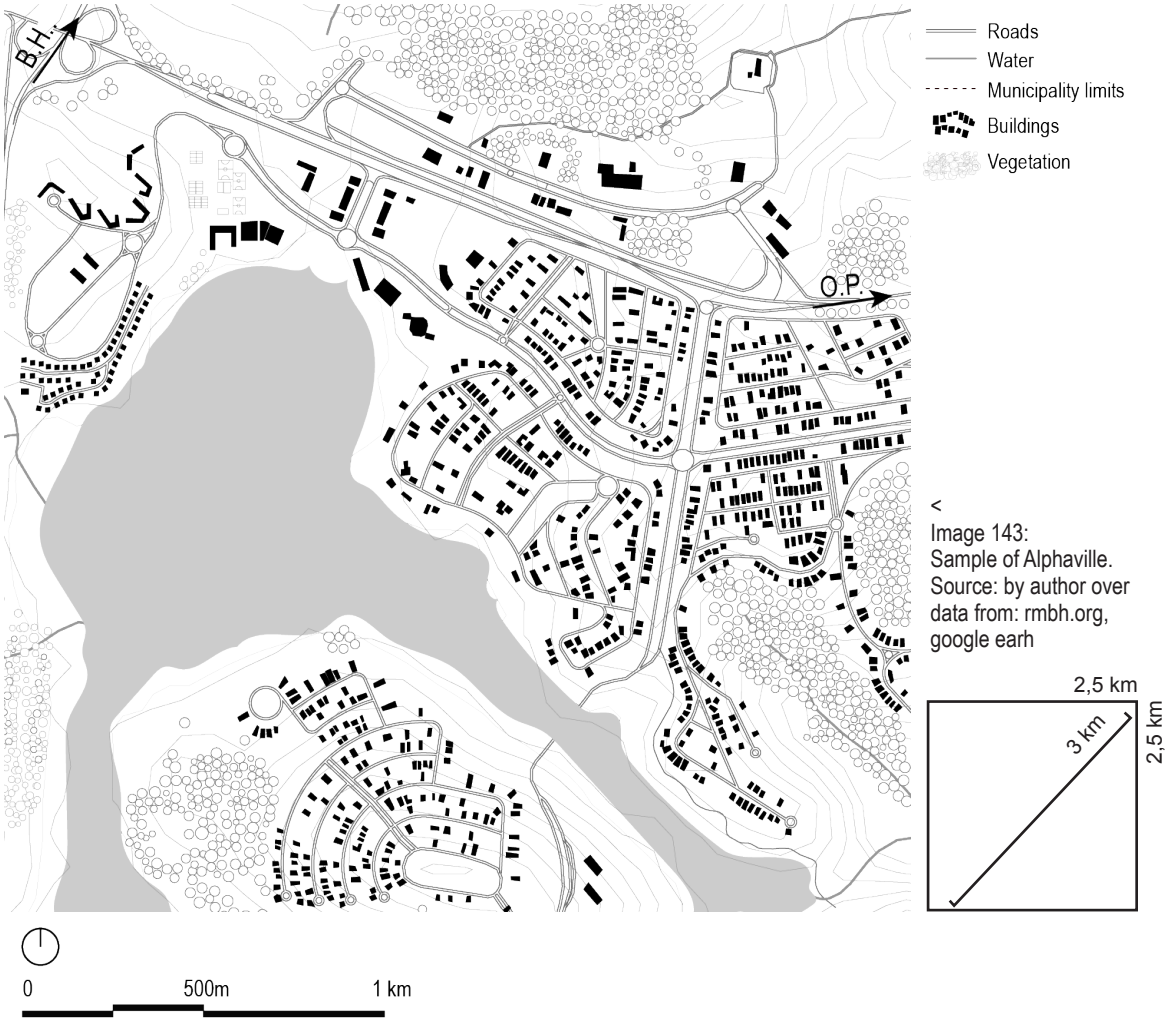
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Image 141:
Sample of Morro do Chapéu.
Source: by author over data from: rmbh.org, google earh

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Image 142:
Section of Jardim Canadá
Vertical scale: 1:1
Source: by author, data from rmbh.org.br, google earth



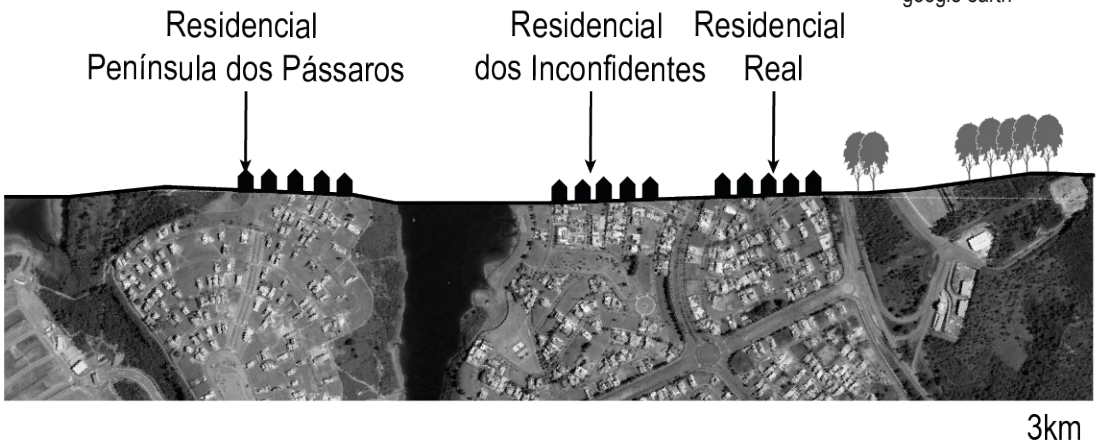


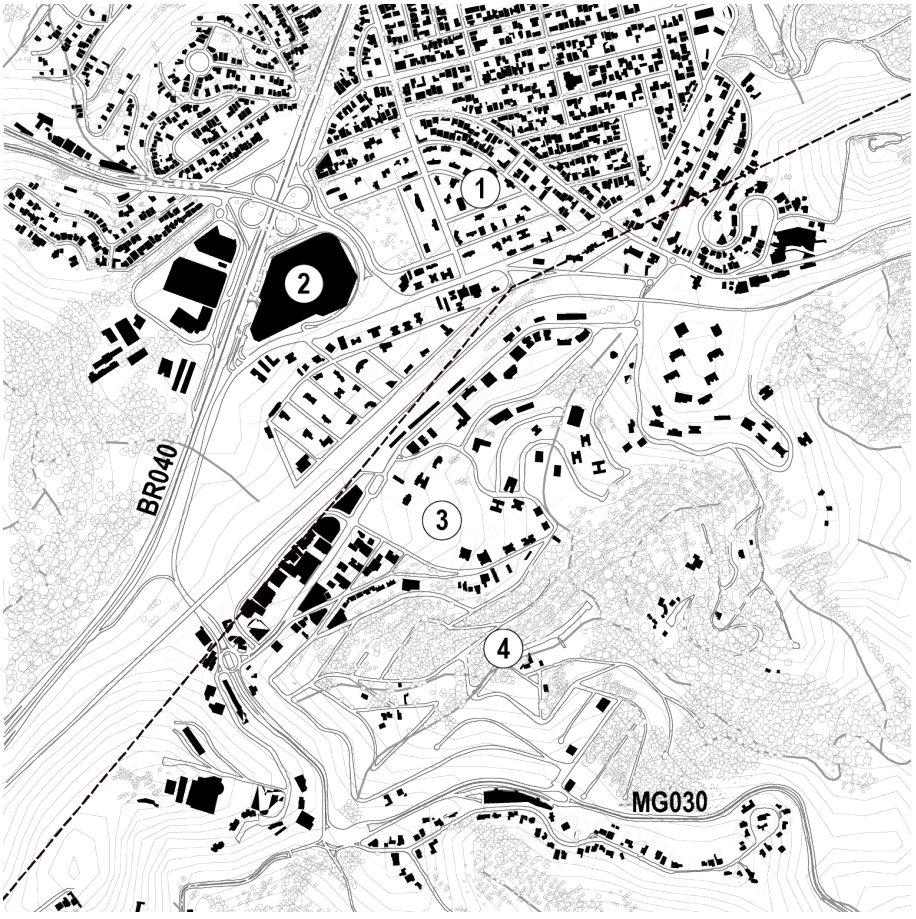
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Image 143:
Sample of Alphaville.
Source: by author over data from: rmbh.org, google earh

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Image 144:
Section of Alphaville
Vertical scale: 1:1
Source: by author, data from rmbh.org.br, google earth



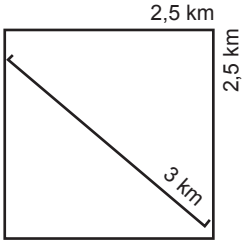


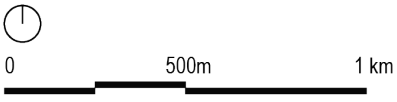
Roads
Water
Municipality limits
Buildings
Vegetation

1. Belvedere
2. BH Shopping (mall)
3. Vila da Serra
4. Vale do Sereno

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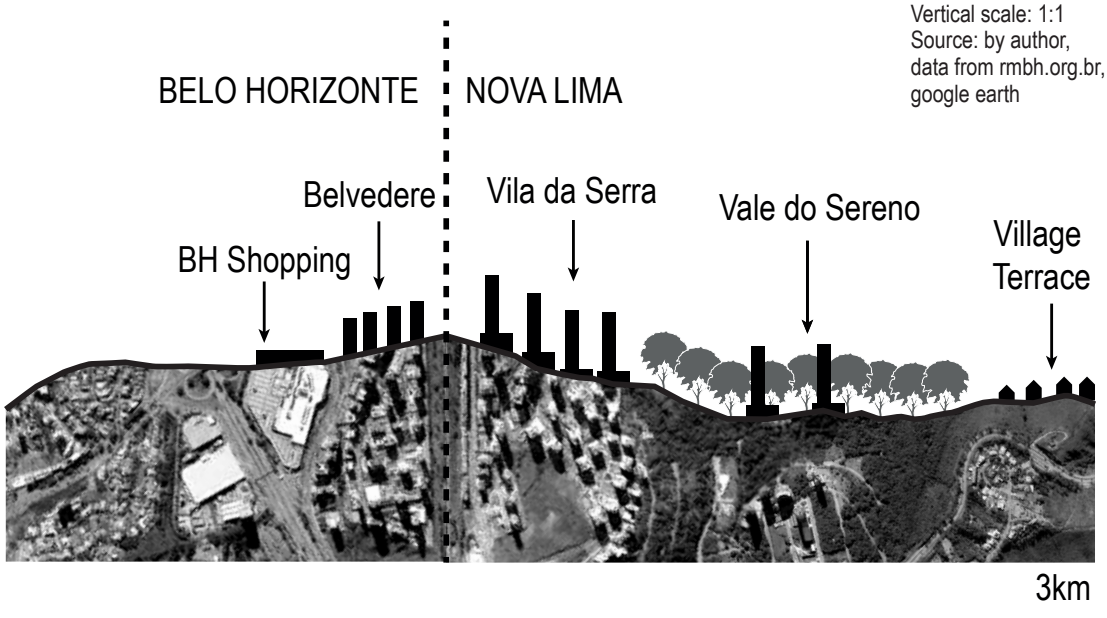
Image 145:
Sample of the border between Belo Horizonte and Nova Lima.
Source: by author over data from: rmbh.org, google earh





V

Image 146:
Section of border between Belo Horizonte and Nova Lima.
Vertical scale: 1:1
Source: by author, data from rmbh.org.br, google earth



regulations[27]. Recently, a food market has been inaugurated inspired by the recent food market transformations that happened in São Paulo, Madrid, Barcelona and others, in which high class restaurants share their eating area with the food market. However, in Jardim Canadá, the actual 'market' part of the formula has never existed and it is nothing more than a food court labelled as a market. Nevertheless, the new entertainment features of Jardim Canadá have been a great commercial success, attracting numerous visitors on weekends, not only from the condominiums around, but mostly from Belo Horizonte.

A similar situation is found in an allotment called Vale do Sol, however on a smaller scale and not yet included in Belo Horizonte's high gastronomic circuits. It dates from the same time as Jardim Canadá and is part of the same process: the allotment of areas bordering the BR040, sold by the mining companies in the 1950s. It was also targeted for lower income workers and did not reach a great success, being partly empty for decades. Today, it also contains a kind of hybrid occupation, having expensive restaurants next to mechanics, flower shops, local commerce, etc.

Outside the core of Nova Lima there is still another settlement that is completely different from the condominiums and from the allotments just exposed. Occupying a valley at the centre of the municipal territory is a community known as 'Macacos', dating since memory, probably since colonial times. The settlement has had, in the past century, an inexpressive, gradual and organic growth independent from the municipalities of Belo Horizonte and Nova Lima. During the 1970s, when the movement towards the south began, the area attracted those who searched for an alternative living close to nature, but different from the other options previously presented, which easy access, fences and gates eventually transformed them in condominiums. Hidden in the valley with difficult access and a dense vegetation the intentions of Macacos' dwellers were really of living in a hideaway paradise, however still relatively close to the urban metropolis. Although the number of restaurants directed at Belo Horizonte's public has increased in the last decades, Macacos has been able to maintain its individuality and has a parallel life, in the shadow of the Nova Lima's heated generic real estate.

The existence of these kind of open allotments and settlements, in between the patches of condominiums, forsters some heterogeneity in the region, which has failed to be a 'rich only area', as Nova Lima's

municipality, together with the mining companies, seemed to have desired. During the 1990s and 2000s, when Caldeira's seminal work denounced the spread of the fortified enclaves, many researches have denounced this new mode of urbanization, concerned about the production of homogeneous segregate gated spaces, absent of urbanity. The survival and the growth of other types of settlements, even in the face of a land monopoly as seen in Nova Lima, proves that the co-existence of differences, typical of the urban, still exists, however in a complete fragmented, centre-less form.

The land monopoly of the mining companies does indeed not imply only homogeneous development. Through the subsequent development waves, - each with their specific development modes, by products, fashions, development opportunities and market conditions - leaves behind a sequence of sediments, on which, on their turn seem to become the fertile new lands on which new developments can occur. And as such path dependent trajectories generate from each of these waves of development.

A research entitled "Origin/Destination" performed by Fundação João Pinheiro in 1992 analysed the mobility – which include housing mobility - within Belo Horizonte's metropolitan region during the 1980s. In Nova Lima's new expansion zones[28], it revealed that out of a sample of 462 families, 108 moved to the condominiums along the MG030 – between Belo Horizonte and Nova Lima centre -, out of which, 35 came from Belo Horizonte, 36 from Nova Lima's core and 35 from the expansion zone of Nova Lima. This shows a rather balanced movement from both urban centres towards this area. However, in the other axis of growth, along the BR 040 towards the south, from the 27 families that moved to condominiums, 19 were from Belo Horizonte while only 7 where from Nova Lima expansion area. The numbers reveal also a relative stabilization of the condominium population along this axis[29], maintaining a stronger connection of the capital and almost no relation to Nova Lima's core.

However, it was not only the gated communities that received more dwellers. The data also shows a significant move of people to other urbanized areas, outside these gated communities – 108 families from the sample of 462. Out of those, 89 came from Nova Lima core and expansion while only 15 were from Belo Horizonte and 4 from other municipalities[30]. (Mendonça & Costa, 2003)

In that sample, there were 135 families moving to gated communities and 108 moving to other areas in the 1980s, evidencing that, although the condominiums are the ones attracting more attention, for their visual impact and appealing social segregation, the fragmented urbanization

of Nova Lima's territory happens also in many other forms, with a very heterogeneous population on the macro level. The emergence of many new allotments directed to low income dwellers have followed the growth of high-income condominiums in all the south region of Belo Horizonte's metropolitan area, especially in Brumadinho, a municipality to the east of Nova Lima, where land ownership is less concentrated, outside the land monopoly of mining companies seen in Nova Lima. The growth of services and commerce directed to high-end consumers of condominiums also attract a diverse population and new ingredients to the landscape, as the urbanization pattern also gets diversified, by transcending the self-enclosed condominium pattern.

According to the analysis of Mendonça and Perpétuo, the recent developments in the 'South Axis' of Belo Horizonte's metropolitan region has been characterized by a strong social polarization, attracting high income dwellers but also very poor. However, land prices have increased in the last decades, also outside the condominiums, which aggravates the social segregation, since even the poorest can't afford to live in the region any more. (Bhering, 2002)

> Image 147: View of Vale do Serero (right) and part of Vila da Serra and Belvedere II (left) Source: by author, 2016

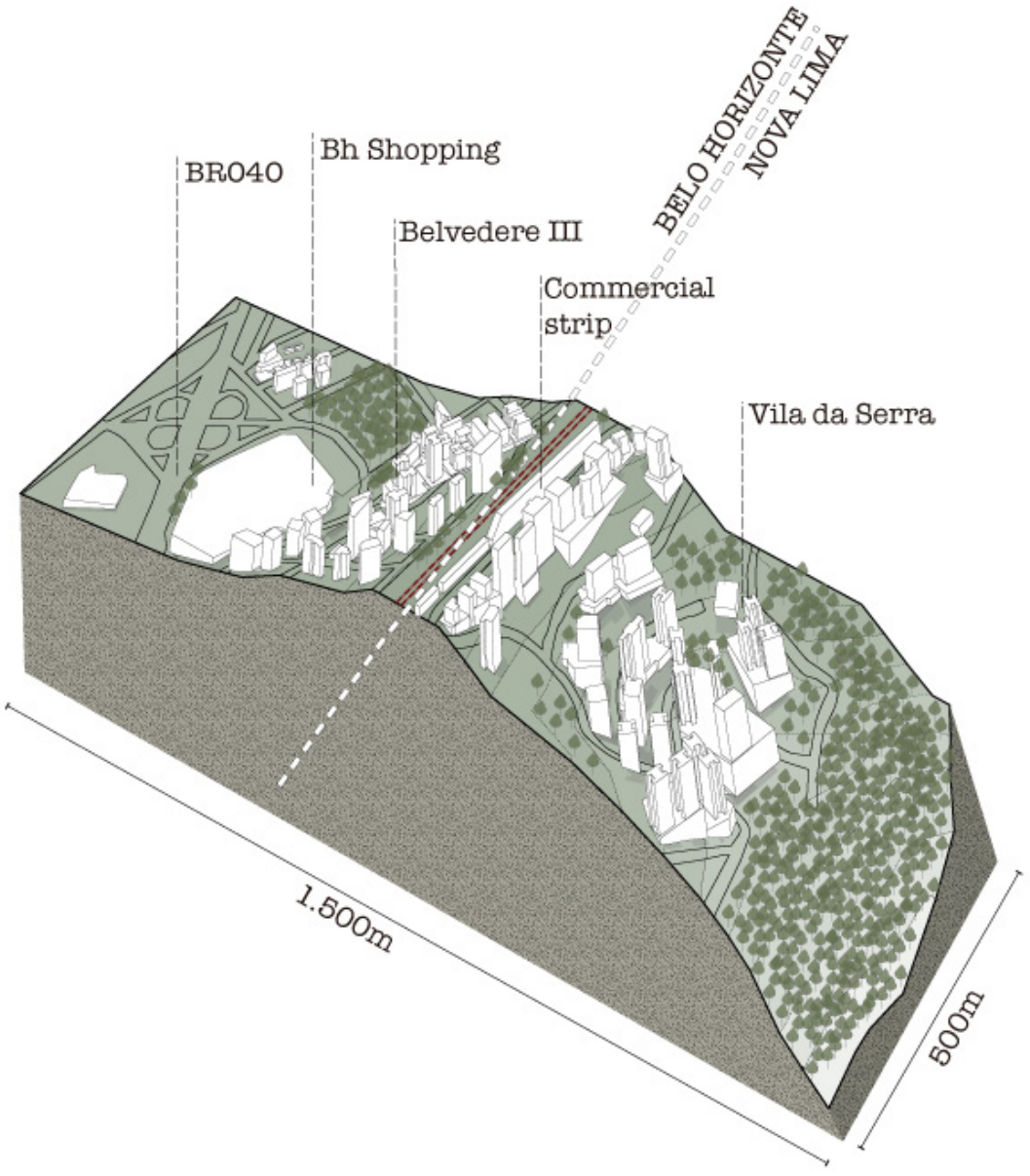
Mendonça and Perpétuo's micro-data analysis has revealed that the majority of migrants between 1995-2000 to condominiums had an income above 20 'minimum salaries'[31] (73,80%), while the majority of migrants in the same period to open allotments had an income below 5 'minimum salaries' (93,70%). Migrants to other settlements outside the condominiums were 42,10% of low income, 18,90% of high income and 52,70% in between; to Nova Lima's core were 35,01% of low income, 12,20% of high income and 52,70% in between.

The analysis has gone beyond income and looked also at occupation: out of the recent migrants, only 30% were high skilled workers (university-degree professionals and business directors), while half was composed of low skilled manual labourers. The crossing of data has also revealed that most condominium dwellers occupying higher positions in the job hierarchy commute to work in Belo Horizonte, while the ones working and living in the same area are predominantly the low skilled service providers which live inside the condominiums or the neighbouring open allotments. The data proves the dynamics in which the high-income dwellers of condominiums attract low income, low skilled migrants for house services - maids, babysitters, gardeners, etc. (Mendonça & Perpétuo, 2006, p.30). Despite Nova Lima's history of mining, the number of industrial workers associated to mining is today very small, due to the end of gold exploration

> Image 148: View of Vila da Serra(right) and the construction of a new condominium (left) Source: by author, 2016






BELO HORIZONTE
NOVA LIMA
BR040
Bh Shopping
Belvedere III
Commercial
strip
Vila da Serra
1.500m
500m

and the modernizing of the iron extraction. (Costa, 2006)

Vertical Suburbia

At the immediate borders between Belo Horizonte and Nova Lima the neighbourhoods Vila da Serra and the adjacent Vale do Sereno and Jardim da Torre, the lasts still partially empty, are part of the fragmented urban expansion in Nova Lima's territory, responding to metropolitan logics of urban expansion that were initiated during the 1950s, as the condominiums and allotments here previously exposed. However, they have been developing in a very different format, despite sharing some of the same operations and motivations.

At the limit between the two municipalities, the region condenses the dynamics of the metropolis, its real estate market and the pressure for urban development. It also responds to the urbanization logics developed in Nova Lima in the past decades, one which derives from mining and which urban politics and governance acts flexibly according to interests.

Despite the high number of allotments approved in the 1970s and 1980s throughout Nova Lima, many of them were not fully occupied and others were not even implemented. This is the case of Vila da Serra and Vale do Sereno. Conceived for a low rise and low-density occupation of single family houses, they had, until the 2000s only a sparse occupation of low houses and some bars wishing to be away from the city hustle, but still close enough to the city. These allotments are now being transformed into a dense high-rise compound, with insufficient infrastructure on an inadequate topography. For Vale do Sereno, still mostly empty, a consortium of private developers has a plan of improving the sewage, drainage and road infrastructure in the neighbourhood, which is probably a result of a negotiation with the municipality and local neighbourhoods' associations, as to fulfil the minimum infrastructure required for densification.

The transformation of this border area started in the 1970s with the implementation of Belvedere, a high-class single-family house neighbourhood at the last frontier of the enriched south region of Belo Horizonte. At that moment, its implementation was already controversial since it was located at the foot of the Serra do Curral, which was protected on the federal level since 1960[32]. In 1979 a large shopping mall was inaugurated at the edge of the city on the large highway junction connecting BR040 to MG030. Naturally, it became an attraction pole for people from all directions and increased the property value and real estate interest in that area.

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Image 149:
Transect accross the borders between Belo Horizonte and Nova Lima contemplating part of the Belvedere II and Vila da Serra neighbourhoods.

Vertical scale proportion: 3:1

Source: by author with data from rmbh.gov.br

Already in 1978, a family business group began to articulate a project for Belvedere's expansion which began by contesting an area that had been appropriated by the State for the conservation of important water catchment areas. After 10 years of dispute, in 1988 a decision coming directly from the executive powers – signed personally by the then mayor – approved the allotment called Belvedere III together with a change of zoning. While in its adjacent Belvedere I and II the Law 4034 of 1985 allowed only single-family houses up to two floors, its expansion predicted high-density residential and commercial zones (Amorim, 2007). In the following decade, environmental authorities, neighbourhood associations and architects mobilized protests and processes against the allotment which remained under judicial dispute still for many years. Finally, in 1995 a judicial mandate put an end to the battle, removing the area from the heritage protection area and confirmimg the high-density zoning. The following year, Belo Horizonte's municipality updated its zoning law, assigning the area as a protected zone, since it is a visual landmark in the city. However, it was too late since the neighbourhood was already structured and most of its projects approved. High rise luxurious towers were then erected at an unprecedented speed, compromising forever the view of Serra do Curral. Already in march of 2000, the area had 19 high-rise buildings completed, more 10 had their completion foreseen for June of the same year and 44 were under construction. (Amorim, 2007) Today, the area in which verticalization is allowed is already filled up by around 100 towers.

From this moment, a new mode of occupation, radically new for Nova Lima, started to mushroom at the borders of Belo Horizonte, in the form of high-income vertical condominiums, as a spill over of Belo Horizonte's verticalisation. In 1991 the zoning of Vila da Serra and Vale do Sereno was changed by Nova Lima's legislation, already influenced by the recent changes in Belvedere III. From low-rise single-family housing, the new zoning allowed high-rises, commerce and services and institutional uses. After Nova Lima's Plano Diretor was launched in 2007, new punctual changes eliminated the height limitation for these areas and allowed the construction of hotels at the margins of the MG030. (Perna, 2012)

The differentiated structure and regulation flexibility of the area resulted in new configurations of residential towers. As the last frontier of Belo Horizonte and due to the topographic conditions, the first buildings were gifted with a panoramic view of Nova Lima's carpet of green hills – mines are not visible from there (See Images 147 and 148). Nature was therefore rapidly incorporated in the real estate market strategies, sold as one of their

product assets. As the area became a continuation of Belvedere III, it was logical and highly profitable to continue with the dense and vertical type of urbanity presented in the capital. The fear of crime and the distancing from the city centres were translated in a demand for large leisure areas for children and also for adult sociability. Extensive playgrounds and social areas on the ground floor exempts families to leave their compounds on weekends, and allows children to stay inside and secure with babysitters, when not in school on weekdays. The emerging business centre in the area also offered nearby work possibilities, thereby completing the edge city tripod 'live, work, leisure'. The real estate developments in Nova Lima developed therefore a successful hybrid of suburban condominium and urban residential towers. They are grouped in two, three and even up to six towers allows having larger private gardens, parking lots and clubs, sharing the costs of security control, cleaning etc. Differently from Belo Horizonte, where plots and blocks are smaller, the urban structure and regulations of Nova Lima allowed this new mode of living, also at unlimited height. The result, so far, is a sparse distribution of high towers, each standing on top of their own private clubs, surrounded by suburban emptiness (See Image 149).

Without a cohesive plan for the neighbourhood, designed originally as a regular low-rise residential area, it was transformed into a densely occupied high-rise mix of residential and business centres through the actions of private developers and enterprises coming to the area. However fast, its occupation was fragmented and induced from many directions, resulting into a strange assemblage. Another problematic point of this occupation lays in the fact that the area is very close to the Serra do Curral, the mountain ridge separating both municipalities which is one of Belo Horizonte's most important symbolic treasures, being protected by environmental and heritage laws and decrees on many levels. However, its visual panorama was only protected on Belo Horizonte's side, while the one from Nova Lima is already completely disrupted[33]. Moreover, the area is located on top of former mining land and very close to a very large inactive mining pit, which have contributed to the disruption of the landscape around the Serra do Curral.

The first large scale investments to come to the area were a private hospital and a private university, settling in the first blocks of an avenue perpendicular to MG030, very close to Belo Horizonte's access. This avenue was known as *'Seis Pistas'* in reference to the six lanes it used to have, three in each side. Until the 1990s, this avenue was known for hosting midnight illegal car races since it was a vast, underused area outside the city. Today, with the



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Image 150:
Mercado da Boca at
Jardim Canadá, on
the margins of BR040.
Source: by author, 2019



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Image 151:
View of Alphaville.
Source: by author, 2019.



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Image 152:
‘Topographical amnesias’
created in Vila da Serra.
Source: by author, 2019.



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Image 153:
View of Jardim Canadá
Source: by author, 2012.



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Image 154:
Road between the ‘residenciais’in Alphaville.
Source: by author, 2019.



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Image 155:
Avenida Oscar Niemeyer, know also as ‘Seis Pistas’in Vila da Serra
Source: by author, 2019

new buildings along this avenue, now renamed Avenida Oscar Niemeyer, sidewalks have been enlarged and parking areas added in a way that only one lane remained at each side, usually congested by cars. Despite the increasing commercial character of this axis, many buildings are residential vertical condominiums grouped in two or three towers forming long lines of walls or fences, discouraging pedestrian movement on one of the avenue sides. Without a zoning plan that foresaw this as a centrality, the commercial uses of the ground floor started to emerge only in the past five years, on only one side of the avenue as the other side had already been occupied by residential only towers, with walled private playgrounds.

As it was not planned to become a densely occupied neighbourhood this avenue is not only its only access from Belo Horizonte and Nova Lima but the only possibility of centrality due to its topographic insertion. It is bordered on one side by a former mining rail line, running in parallel to the avenue on a much higher topography and on the other by a deep valley in which part of Vale do Sereno is located.

The incentives provided by the municipality for the tertiary sector, wishing to establish a competition with Belo Horizonte as well as guaranteeing revenues to substitute the diminishing mining royalties have resulted in the attraction of many companies to the area, constituting the newest business centre of Belo Horizonte. However, the workers of this companies are not all Nova Lima dwellers, so the daily commuting to and from Belo Horizonte make the congestion of this area even worse, seen its limited accessibility. The traffic congestions overspill to BR040 and its ramifications inside Belo Horizonte creating a serious metropolitan conflict between both cities. While Belo Horizonte's city and metropolitan regions masterplans have, throughout the years, tried to halt develop in that direction, seen the environmentally protected areas and the limited access of BR040, in a hilly topography, Nova Lima's municipality is acting in the counter direction, attracting development.

Besides the problematic access, the verticalization and densification of this area has other serious implications. First, as previously mentioned, the infrastructure built for the area is insufficient for the densification under way resulting in serious traffic jam congestion, lack of water and proper sanitation. The occupation of Vale do Sereno and adjacent allotments, approved since the 1970s and therefore complying to older urban regulations are threatening the pollution of important aquifers close by, at Serra do Curral and also in the valley below. The susceptibility to erosion and the soil fragility are not considered for the implementation of high-rises. As the declivity is not adequate for the volumes built, their

construction requires massive cuts and fills which disturb the environment while provoking soil erosion and land sliding.

The increase of a high-income population in Nova Lima's expansion zone has transformed the area in a preferred 'party place' for Belo Horizonte. Lately, it has been remarkable the growth in number of events along this fragmented area, dislocating the 'fun' activities in the city. As Belo Horizonte's noise pollution regulations and community conflicts in traditional meeting places such as squares has been increasing, elite parties are dislocating to these areas, where there are less inhabitants and regulation and control are less strict. They occur mainly in Jardim Canadá and in other non-gated settlements along the highways which have, as some areas in Pampulha, become the locus of the 'otherness' which is not allowed inside the exclusive condominiums. Interestingly, some of them are even temporarily camping in allotments which streets have been laid out but abandoned in the lack of environmental licensing.

4.4. Findings

The analysis of Nova Lima's territorial long history allowed to give extra texture to the process involved in its fragmented urbanization. Inserting it in the context of the colonial mining urban network allowed to see how the developed pattern is not a reflex of the most recent tendencies of urban fragmentation but has in fact a longer history. Such fragmentation is the result of a pattern formation that comes from the mining property acquisition, the cycles of mining development and abandonment, and the infrastructure installed, such as the water for the mining and also railways and roads.

The case of Nova Lima and its intertwinements with the mining sector evidences also the long history of private-led urbanization processes. To some degree, it was already present in the foundation of Belo Horizonte and latter in Pampulha but it acquires a new dimension in this case.

Seeing the territory as a transformed landscape provided a better understanding of the relations between resource extraction and urbanization and how both of them act in its profound transformation. They are both consumers of land and natural resources, sometimes in competition and sometimes in symbiotic relations. On the other hand, they are both constructing new landscape through the embedding of the urban in nature along with its commodification and through the construction of

new panoramas. It has also enlightened the idea of a resource extraction urbanism (Correa, 2016), that is able to embrace mining as part the urban context, and not as something outside of the urban or for that matter the rural.

The cartography produced allowed producing a visual spatial narrative of these relations, evidencing how urbanization, infrastructure, mining, and ecology are intertwined. They occupy the same type of space – the ridges - a spatial condition that is fostered by geology. It has also been able to make visible the relation of underground resources to ground and landscape transformations. Maps have also provided a wholesome view of a territory that is made of fragments and, most importantly, have drawn relations between those. The use figure-ground maps which also depict topography, water and vegetation, associated with sections, has allowed to critically access and compare the physical insertion of Nova Lima's diverse type of fragments.

The focus on actions towards space, which goes from the transformation of landscape for men use, with the investments made and with the patched constellation of settlements have revealed in Nova Lima interesting and unusual modus operandi towards urbanization. While investments on space aimed at mining, they also served for urbanization. With time, when mining is no longer interesting for a given territory, its locational assets are reconverted to urbanization. Assessing critically the operations put in place for the construction of condominiums, has revealed how ideologies of nature and crime have been instrumental for their construction, transforming deeply this landscape and the mode of living of this new population. Inhabiting a nature and safe refuge has also other spatial and social implications, as it attracts more people, services and involves everyday commuting. It becomes evident as well, how habitus of socio-spatial segregation reverberate in the inhabiting of space, however the new forms, spaces and modes of living. Another learnt practice which perpetuates is the radical transformations of ground, which have a local history since the foundation of Belo Horizonte, the formation of Pampulha, but at the same time reverberate a long and global history of resource extraction.

Regarding the inhabiting of the space, like in Pampulha and in the urban zone of Belo Horizonte, what was first envisioned for a higher-class residential compound was forced to accommodate and adapt to fit whatever did not fit. The preservation of social homogeneity within the condominiums is guaranteed by its fences and strict internal occupation rules in the absence of urban regulation. On the other hand, as also happened in the previous cases, it has attracted and fostered diversity outside its borders. In face

of the land monopoly and the nature preservations areas in Nova Lima, this does not happen at their immediate borders, but in unvalued areas, attached to the highways or even at neighbour municipalities.

As seen, despite the evident differences in the spatial results and in the actors involved, some of the actions, social relations and processes of urbanization show some similarities. Social segregation, incremental infrastructuring and deep ground transformations are involuntary memories that persist in Belo Horizonte's spatial history

Endnotes

1 Serra da Moeda and Brumadinho are the locations were the most recent mining tragedy occurred, with the rupture of one of the mining waste dams of the Vale company, on 25th January 2019.

2 Information available at http://www.cmnovalima.mg.gov.br/nova-lima/historia/, last consulted on 4th June 2019

3 Portuguese denomination for village, or settlement.

4 93% of Nova Lima's municipality is inside the environmental protection area named APA-Sul, while 60% of the APA-Sul is property of mining companies (Mendonça & Costa, 2003)

5 An example of this is the UNIVIVA, the union of associations of the condominiums and dwellers of the Vila da Serra, Vale do Sereno, Belvedere, MG030 and region, founded in 2017, which is very active in watching the environmental integrity of the region, amongst other common issues. The union has shown concerns with the development of a new neighborhood, to be called Bellagio. After the population pressure, the real estate development is still pending on the environmental licenses to be finished. See www.univiva.org.br, last consulted on 4th June 2019

6 In a simplified explanation, we can say that this syncline was formed by the folding of the rock, exposing layers that used to be underneath. (Carvalho, 2001)

7 Previouslly spelled as São João D'El Rey, the name of the municipality is now São João del Rei

8 Estatística da produção de ouro na província de Minas Gerais no ano de 1879. Annaes da Escola de Minas de Ouro Preto. Ouro Preto, 1:168, 1881 apud Libby, 1979, p. 48)

9 The system of the Rio do Peixe consisted of six generating plants operated in the years 1904, 1905, 1906, 1912, 1919 and 1933, using the waters of the Peixe river dammed in the lakes Miguelão, Codorna e Lagoa Grande.

10 According to the same author, around 1925 the company had a shortage of workers, which became attracted to work in small farming.

11 www.arcelormittal.com.br, last consulted on 4th June 2019

12 For a long time the mining companies continued to use their private railway to export their products. Since 2014, a 525 km long tubular system connects Conceição do Mato Dentro in Minas Gerais to a port in São João da Barra, in Rio de Janeiro, for directly transporting the iron ore production for exporting.

13 Although several sources mention this private exchange between the companies and the municipality, it was not entirely clear which kind of agreements were done.

14 See for example the activity of the group ReNova Lima at https://www.facebook.com/renovalima/

15 Archaic Portuguese word for designating uncultivated land.

16 The *Código de Minas* (minning code) of 1940 (Decreto-lei 1985/40, 29th March 1940) established in its 6th Article that the right of research and mining could only be given to Brazilians or to Brazilian companies with Brazilian owners or stake holders. This resolution was suspended in 1964 (RSF 16/1964), the year the military coup in Brazil. In the new code of 1967 (Decreto-lei 227/1967) such rights were guaranteed to Brazilian individuals or companies legally registered in the company, a position maintained by the following legislation.

17 The term 'condominium' will be here used in reference to allotments in which access is restricted by barriers and entries are privately secured by guards, acknowledging that, on the legal point of view, many of them don't constitute proper condominiums. Despite the gates, their streets are formally public spaces and restricting their access is considered an illegal practice. The term is here preferred over 'gated communities' as *'condomínios'* is how they are referred locally and since they not necessarily constitute communities with the social bounds the term suggess.

18 Free translation by the author. In the original: *"espaços privatizados, fechados e monitorados, destinados a residência, lazer, trabalho e consume. Podem ser shopping centers, conjuntos comerciais, empresariais, ou condomínios residenciais. Eles atraem aqueles que temem a heterogeneidade social dos bairros urbanos mais antigos e preferem abandoná-los para os pobres, os "marginais", os sem-teto."*

19 Free translation by the author. In the original: *"Foram locadas visando attender a demanda de áreas de assentamento para população de alta renda, e ao mesmo tempo proteger as áreas das bacias dos lagos artificiais da Aglomeração, ou ainda permitir um parcelamento mais adequado às áreas de topografia acidentada."*

20 The law 9785 of 1999 replaced this article. According to the new text the urban parameters concerning uses, minimum and maximum areas are to be defined by each municipal legislation

21 In Portuguese, the terms used are *vias de comunicação* and *áreas livres*, which refer to the streets and voids, but the law does not treat them as public.

22 This *condomínio* is formaly in Brumadinho municipality, just outside Nova Lima's border, but belongs to the same pattern of occupation along the BR040 axis.

23 Information available at www.retirodaspedras.com.br accessed on 1st November 2018

24 Descriptions available at www.csullagoadosingleses.com.br accessed on 31 October 2018

25 Free translation by the author. In the original: *"que tem como característica principal a concepção de espaços urbanos sustentáveis e dinâmicos, onde empreendimentos imobiliários convivem em harmonia com empreendimentos comerciais, de serviço e lazer"*

26 Free translation by author. In the original: *"sem que precisem enfrentar o desconforto dos grandes deslocamentos no trânsito caótico das grandes cidades."*

27 See Law 9.505 (Belo Horizonte, 2008)

28 The research did not consider moves within the same zone or to Nova Lima's original core, which population has been decreasing in the last decades.

29 In the 2000s, the construction of Alphaville, a large condominium along the BR040, would change this momentaneous stabilization.

30 The data compilation of Mendonça and Costa (2003) does not mention the losses of dwellers.

31 The 'minimum salary' was, on October 2018, R$954,00, which at this date, equaled approximately to € 220. Therefore, high income was considered as above € 4400,00 and low income as below € 1100,00.

32 The Serra do Curral is protected by the Iphan, the Instituto do Patrimômio Histórico e Artístico Nacional (national artistic and historical heritage institute), enlisted on 21/09/1960 at the Livro Arqueológico, Etnográfico e Paisagístico, under the inscription number 029-A. However, the perimeter of protection descriptions are described in a very abstract manner.

33 The Portaria nº 437 of 19 November 2018 gave a precise delimitation of the protected area and its surrounding buffer zone and also more detailed guidelines for its protection. However, the protected area includes the already built residential neighborhood Mangabeiras, in Belo Horizonte, and its buffer zone includes inactive former mining pits on both sides.

Conclusion

At the library of the Escola de Arquitetura e Design, the faculty of architecture, urbanism and design of the Universidade de Minas Gerais an entire section is dedicated on the studies on Belo Horizonte, containing many shelves full of historical perspectives on the history of Belo Horizonte, under the view of architecture and urbanism. Yet, this thesis has presented one more.

However, it has depicted Belo Horizonte's spatial history from other angles, while constructing specific interpretation lenses with the support of conceptual tools, which can be here summed as: landscape, constellations and actions. Those have fostered a historical urban research which focuses on the analysis and interpretation of the practices of spatial transformation in the territory of Belo Horizonte.

The main question of this thesis was which are the operative logics hidden behind (state) plans and other discourses and, which is the *modus operandi* of every-day city building acting in Belo Horizonte's spatial history. It has aimed at revealing, through an episodic history, the processes of urbanization that have shaped the city by dislocating the protagonist role usually assigned to plans and projects. Presenting three important episodes in Belo Horizonte's spatial history, the thesis has hypothesized that common patterns of urbanization could be identified across episodes, whichever projects, methods and practices were at stake in each corresponding moment. It was based on the assumption that despite the transitoriness and ephemerality of projects, they in fact tend to reproduce long living social and politic-economic relations. Thus, despite the ideologies, *habitus* of city-building practices tend to perpetuate themselves, like involuntary memories across history.

To answer these questions, the thesis has done a historical revision of three episodes in Belo Horizonte's history, contrasting plans, ideals and models to the way they were interpreted and their further development in the materialization of the city. While acknowledging and examining the first plans and motivations leading to the emergence of each episode, the thesis has also exposed the process through which each space has materialized,

with a focus on processes, operations, laws, investments and practices which had as result this materialization.

Covering the spatial history of a large territory in a large spam of time is anyhow an impossible project, specially one of a doctoral thesis. This becomes even more critical when one proposes a rhizomatic approach to sources, having as object of research something as wide and abstract as space. However, a historical spatial reconstruction that is built through episodes and that focus on specific lenses of interpretations that can evaluate the materialization of space has revealed interesting results. The method has allowed to reveal how each episode builds up from the previous one, carrying some of its urbanization *modus operandi* legacy but also inventing new ones. At each time, there are different ideologies and different actors involved, but some practices remain very similar. The method applied and the narrative produced have nevertheless opened to new possible histories of this territory, and others

To achieve the thesis' aims, a strong asset of this thesis has been the diversification of sources and methods. The readings of secondary sources of the city's history has directed a selection of important facts and procedures that have resulted in the spatial transformation of the territory. From these readings, I identified consensual views on each episode, which have been questioned, revised and expanded by means of the creation of three analytical lenses, identified as been embedded in the territory's history. This has been enabled by the direct examination and interpretation of primary sources such as newspapers, magazines, politician's discourses, cartographical material, photographs, mayor's reports, laws, decrees, projects, plans and others. In each of the cases, the archival research of magazines and newspapers or the informal conversation with dwellers has allowed to grasp, even if punctually, some of the people's feelings and the effects of the assessed spatial transformations in their everyday life. Some of these impressions have been here exposed in the form of personal chronicles, anecdotes and quotes.

The ambition to create an alternative spatial history of Belo Horizonte has implied the construction of equally alternative methods for research. Besides the contributions made to the history of Belo Horizonte's territorial urbanization (to be summarized thereafter), another important contribution of this thesis has been, without doubt, a methodological one. The elaboration of interpretative cartographies has revealed spatial logics and connections that were absent from traditional sources. The cartographies were here produced through the redrawing, combination and juxtaposition of historical maps, cadastre surveys, sections, GIS

information and others, added with the spatial grounding of laws, decrees, investments and other narratives. This has succeeded in testing, evaluating and exposing historical and current actions directed towards space with tangible material results. Here, the cartography produced is not a mere representation of space, but a mode of inquiry and discovery of historical spatial relations.

The research has also constructed its own interpretative lenses which did not derive from any preconceived method but were built from the historical understanding of this territory's occupation since the eighteenth century, with the contribution of theoretical notions, here used as conceptual tools. Here, space and landscape were approached through the notions developed by Milton Santos (1998, 2002) and Henri Lefebvre (1991), more specifically on the socio-spatial dialectics as a mode to evaluate and assess the transformations of space as a result of men's action within social relations. To these notions, Charles Waldheim's (2016) and James Corner's (1999) understandings of landscape both as a medium and as a tool for investigation of urban relations, have been added in order to construct the lens of' landscape'. This directed gaze on urban development has allowed bringing forward the relations of the urban to its original and created natures by integrating themes such as topography, vegetation, water and mineral resources. The lens of 'constellations' has emerged from the interpretations of Fernanda Moraes (2007) of the eighteenth century colonial urban network developed in colonial Minas Gerais in combination with Cronon's (1992) methods for combining urban and non-urban narratives and with Walter Benjamin's thinking strategy of thinking through constellations. Through the lens 'investments' the actions involved in the transformation of space were evaluated according their ideologies, as defined by Althusser (1971), and through Bourdieu's habitus, while also being illuminated by the socio-spatial dialects.

The diversification of methods and lenses for this historical revision has also meant the expansion of scale and time frames used to approach each episode. Thus, Belo Horizonte's foundation is seen as a continuum of Minas Gerais urban network expansion, established since the discovery of gold at the turn of the seventeenth century. Equally, the most recent urbanization phenomena happening at the borders between Belo Horizonte and Nova Lima were examined in the view of the long history of mining, investments and spatial fragmentation in this territory.

The insights resulting from the research questions posed and the methods applied will be here summarized.

An epilogue of an urban constellation

In the first chapter, I have exposed a brief account of the early history of urbanization in Minas Gerais. Its analysis has revealed the intrinsic relations established between urbanization and mining, working as associated forms of landscape transformation, either through the extraction of its soil or through the construction of human settlements. Throughout the eighteenth century the discovery and exploration of gold has directed the establishment of a colonial constellation of mining towns. Those were connected through paths that became routes of exportation of minerals and also contributed to the expansion of the colonized territory in Minas Gerais. The demands of the mining activity and its surplus capital fostered the gradual diversification of the local economy, aggregating also food production and small factories of textile and tools for mining.

The analytical reading of travellers' logs of the mid-nineteenth century have exposed the mutative character of this landscape. Where the gold mining had prospered once, along the river valleys all around the *Quadrilatero Ferrífero*, was at that moment a revolved and sterile ground. Today, these gold-rich valleys have been transformed into a variety of spatial forms, from nature reserves, to urbanized areas or dug deeper while extracting gold or iron ore. The case of the colonial mining urban network has also exposed how the same investments done for mining are also serving for urbanization, - a pattern that has found resonance later, in twentieth-century Nova Lima – such as the taming of water and the construction of roads and mining camps, later becoming villages. Throughout Minas Gerais' history, from the colonial settlements to more recently Nova Lima, former mining sites have opened the way for urbanization.

The foundational myth

The second chapter has exposed the foundation of Belo Horizonte and its first two decades of urbanization, expanding this event into a chain of other events before and after, starting with the first motivations to move the capital of Minas Gerais two centuries before. First, I have critically assessed some of the consensual visions formed on Belo Horizonte's foundational project, which have been challenged through a re-reading under the interpretative lenses established.

Seeing the construction of Belo Horizonte as a process of landscape transformation has revealed how its project relates to its ground condition, either adapting to it, or transforming it. On one hand the imposition of a grid mesh on an undulated territory requires profound topographic manipulations and the interference of water courses. On the other hand,

the analysis of the plan and further cartographic exercises have revealed how in fact its positioning might have been directed by topography, as the Urban zone, where the grid was applied, was placed bordering the Arrudas River and 'avoiding' some steeper hills to the south, where rural areas were envisioned. Moreover, the cartography produced has also demonstrated what some authors had already pointed, that is, the strategic positioning of some of the programs according to topography, a tradition already seen in Ouro Preto and other Portuguese colonial settlements. The reports of Ouro Preto's revolved ground have given us an idea of how the manipulation of ground and water was not something entirely new for the descendants of the first mineiros. Such long standing practices gained thus a new impetus with the construction of a new city.

Seeing the 1895 plan and its implementation as a constellation has exposed how the three initially distinct and concentrically organized Urban, Suburban and Rural zones have been conceived, interpreted and modified throughout Belo Horizonte's first moments. In Reis' plan those zones were distinguished mainly by their spatial organization and property structure, which in consequence determined functions. With time, the subsequent aggregation of laws, decrees and juxtaposed projects, such as the agricultural colonies, have contributed to, on the one hand, construct a collective understanding of what constituted urban, suburban or rural occupations and practices and, on the other, reorganize and subvert the spatial distribution of such categories. What was revealed through this process is a constant tension between the predeterminations of plans and laws and social reality.

While already in 1895 urban and suburban plots were being commercialized and given to State functionaries and property owners of Ouro Preto, the first action taken to facilitate the access of lower income populations to land was only in 1902. Meanwhile, other solutions were found, such as the irregular occupation of not-yet urbanized areas in the urban and suburban zones (and beyond), as well as the early urbanization of the agricultural zones. This tension has resulted in a pattern of ad hoc regulations and laws, responding to ground reality, allowing uses and practices here and forbidding there, as attempts to control and direct urbanization. Although the transfer of the capital and the construction of a new urban environment promised to represent the nation and state's new republican moment, it was impossible to overpass the fact that slavery had only been abolished a few years before. Consequently, Brazilian abysmal social class differences would also have its reflexes on the new city. In this new spatial organization, new forms of social segregation were also inaugurated, be it

by the determination of zones, the management of a plot market or the definition of special concessions here and there.

In this analysis, the episode was approached through a variety of different sources in order to expose the rhizomatic texture of Belo Horizonte's foundation, which is a result not only of the implementation of a pre-conceived project, but of an assemblage of laws, facts and projects, projected onto a landscape, transforming it profoundly. The cartography produced is a key part of this analysis, as the redrawing and combination of different historical maps allowed understanding Belo Horizonte's process of occupation across time. This allowed the verification of spatial results as a sum of processes and projects rather than relying only in the original plan, such as the implementation of the agricultural colonies and the establishment of special workers zones. Cartography, in combination with the alignment of other facts, allowed explaining Belo Horizonte's first suburban growth that goes beyond the interpretation of a spontaneous and uncontrolled phenomena. It was possible to see for example, how it associates with topography, infrastructure, legislation and other projects.

The anomalous modernity expanded

Forty years after the city's inauguration, a new form of urbanity emerges at the brand-new lake of Pampulha, far away from the city. This new episode provided a new opportunity to explain processes of urbanization through the lenses developed. It is yet another case in which profound ground manipulations were put in action in order to materialize a pre-conceived idea of space. While in the first episode we have seen the imposition of the orthogonal grid onto an undulated landscape, in Pampulha the flatness of the waterbody formed by the damming of Pampulha river has imposed itself on a farming landscape to found a resort. As in the first case, it became clear in Pampulha which classes should occupy the privileged space of engineered landscape. Social segregation was thus ensured and maintained through laws that tailored its materialization to specific standards.

The analysis of the discourses and practices of Pampulha's main political figures, Octacilio Negrão de Lima and Juscelino Kubitschek was done through the examination of their personal memoirs and administrative reports as mayors. A critical reading exposed the tensions between creating a space for the city and its citizens, but at the same time capitalizing on that for the creation of an exclusive neighbourhood. Such tensions survive in Pampulha until the present day, as subsequent laws aimed at the preservation of the created landscape is paired with subsequent state investments to consolidate Pampulha's character of the city's main touristic attraction.

The instrumental interpretative lenses here applied have allowed seeing Pampulha's development beyond the images formed by its monumental architecture and beyond its residential green enclaves. They highlighted the profound landscape transformation through dam formation and planting of exogenous vegetation, and the power of state investments into building its spatial character and embedded symbolic values. The creation of a new landscape around a large water surface, doubly intended as a technical solution for water supply and a resort formation, was combined with the municipality acquisition of large portions of land. This condition has fostered subsequent investments in monumental architecture associated with leisure – ball houses, sports stadiums, zoo, parks – which were part of a national project of modernization through the State's strong hand. Seeing diverse urbanization practices and spatial results as constellation exposed what initially seamed divergent operations on space, as assemblages of practices and projects that materialize in space.

The cartographic exercises built a visual timeline of Pampulha's development, first by visually exposing its farming past, often overshadowed by the image of the lake. Then, a collage of allotment approval plans revealed Pampulha's decades long fragmented materialization, through allotments combined with large public investments. The mapping exposed that the patching of those interstitial spaces which allowed the emergence of exceptions within the area's exclusive residential pockets. Thus, cartography revealed and explained the formation of corridors of 'otherness', which were later rectified in zoning as commercial axes. These spaces have allowed the insertion of some heterogeneity in Pampulha, first conceived as a suburban picturesque weekend destination. Today, the lake is at the centre of Belo Horizonte's larger sub-centrality, everyday more independent from its traditional centre.

A long history of intertwined mining and urbanization

Lastly, another episode of Belo Horizonte's suburban expansion was revealed through the case of Nova Lima, starting concomitantly but in the opposite direction of Pampulha. The sprawl of residential enclaves throughout this territory from the 1950s onwards is commonly understood as having origins in Belo Horizonte's metropolis dynamics, as a parcel of its resident started an escape from the city, inaugurating new forms of living in a 'virgin' landscape.

With the aim of expanding the historical sources and explaining urbanization *modus operandi* through other logics and in a longer historical spam, the thesis has retroceded to an earlier history of Nova Lima's territory,

which focus on the landscape transformation, through investments and the constellational formation of urban patches. The research revealed a long history of intertwined urbanization and mining, which in Nova Lima are very close and at times superimposed. The municipality historical core has developed on top of gold deposits which meant that the town's everyday life was deeply intersected with extraction activities. Its urban infrastructures were also mining ones, such as water canalization, miners' neighbourhoods, railway, electricity. Throughout the twentieth century these relations were extended across Nova Lima's hinterland as inoperative or former mining territories were converted into urban areas, in a context of land monopoly by mining companies. Thus, underground and surface relations, such as geological formations, the presence of minerals and land property relations have been fundamental tools for understanding Nova Lima's patched urbanization. Those were revealed through cartographic exercises which, combined, exposed diverse sources of spatial information. The mapping produced has also allowed to visually access the three identified forces which bring tensions in Nova Lima's territory: mining, urbanization and environmental protection. Maps revealed how those are very close to each other and at times overlapped, making evident their conflictual, but at times symbiotic relations. While it has been showed that mining and urbanization share the same operational logics and the same infrastructures, environment protection is what fosters the 'living by nature' desire, while simultaneously being threatened by it.

Thinking through constellations, landscape logics have been associated with others of different natures. They were seen also in relation to state investments, such as the construction of highways and the development of the steel industry in the regional context. Moreover, spatial planning at the metropolitan level has also contributed to the spatial results seen in Nova Lima, as environmental concerns have directed towards a low density, low rise, large properties urban development. The green assets preserved in Nova Lima as a result of a combination of land monopoly, protective legislation and spatial planning have been capitalised by the real estate market. In the last decades, the private-led urbanization pattern inaugurated by the mining companies since the early twentieth century has been intensified in a scenario of neoliberal urbanization. As exemplified by the condominiums launched in the last decades, urban development is done through one-by-one direct negotiations between developers and the municipality rather than directed by a comprehensive metropolitan planning.

What was seen in Pampulha throughout five decades is now starting

to take shape also in the suburbs of Nova Lima: starting as a well-off residential enclave outside the city, it gradually becomes a more diversified environment with the appearance of other uses and social classes. As dwellers of such enclaves also need services and products, other uses, activities and lower-income allotments begin to occupy spaces along the roads, promoting some diversification in the region.

Once more in Belo Horizonte's spatial history, extreme ground manipulations set the basis of the occupation of an even more steep topography. In a territory already intensively carved up for mining, real estate development seems to be learning from mining practices and installing new allotments in unexpected topographies. As the process of urbanization is very fragmented, one does not see extensive ground manoeuvres as in the implementation of Belo Horizonte's foundational grid or Pampulha's lake surface. Such interventions, however, are not less dramatic but done punctually, either by cuts and fills for building roads on steep hillsides or by the visually impacting foundations of residential towers.

Final reflections: the episodes seen through the lenses

Despite being almost completely built up, the 120 years old foundational grid of Belo Horizonte does not have a consolidated spatial form as, to the present day, low rise houses are being substituted by towers and many plots remain as expectant spaces in a context of land speculation. In Pampulha, many plots remain empty and the clashes and stretches between preservation and urban development makes its future still open for debate despite the apparent consolidation fostered by actions such as the UNESCO heritage enlisting. What this sort of image tends to propagate is the false idea of Pampulha exclusively as the landscape formed by lake and monuments, rather than the centre of a dynamic region. In Nova Lima, the transformation in the last two decades have made its borders with Belo Horizonte unrecognizable, a process that does not seem to be deaccelerating any time soon. The pioneer's condominiums which were once far-off retreats from the city are increasingly more visible and part of the metropolis dynamics. As its territory is rapidly been built up fragmentally, its future is highly uncertain, especially as its mines start to plan for foreclosure.

In all cases, the look on the transformations of landscape, the constellation of actors and processes and the investments made revealed the direct actions of man in space and how those fostered deep transformation of the built environment, that is, in the materialization of the city and its territory.

Seeing the formation of the urban space like landscape transformations has allowed the integrating of themes and elements usually seen as non-urban, such as agriculture, ecology and resource extraction. It has also allowed seeing Belo Horizonte's territory as a medium in constant transformation, always susceptible to change and adaptation, as it has been defined by Waldheim (2016). Seeing these landscape transformations in a wider territory and wider historical perspective has explained, for example, Nova Lima's recent urban fragmentation through establishing relations with Minas Gerais' three centuries long history of intertwined processes of mining and urbanization. In all three cases, this view has shed a special light on men's approach towards nature, through the manipulation of topography, canalization of rivers and construction of dams. On the other hand, it has also exposed how the processes through which the city embeds itself in nature, also artificial landscapes are produced, with the construction of parks, planting of trees, and lake formations. A nature which is, with time, perceived and lived as a natural one.

Through the spatial notions developed by Milton Santos, this spatial narrative has seen urbanization as the result of a socio-spatial dialectics, in which space is understood as hybrid of systems of objects and systems of actions. In this dialectics, actions and objects are not seen separately, but always in relation to each other. Thus, interested in the processes that result in urbanization, actions were selected and evaluated in this thesis for their capacity of transforming space. Seeing the formation of space as a constellation of things and practices has enhanced this relational way of thinking of space, especially in a historical perspective. Constellations have thus fostered analysing spatial transformations through assemblages of laws, urban regulations, allotments, economic cycles, infrastructure and others. It revealed an urbanism that is practiced through a sequence of processes and decisions, in which planning is only one of the many forces and not its predominant one.

While understanding space as a social construction, the thesis has also assessed how the discourses on space get translated in material space. Throughout the three episodes, political discourses were evaluated by their effect on individual, state or group actions which have had a material reflection on space. It has exposed how the positivity seen in Belo Horizonte's foundational project is not only translated to the urban form designed by Aarão Reis, but is actually an omnipresent force in many of the discourses before and after the implementation of this plan. In the other episodes, the ideologies of modernization and progress had also had their effects on space, by serving as mottos for state investments

in infrastructure serving industry and transport – and ultimately also urbanization -, as well as leisure spaces such as Pampulha's. However, as we know, the modernity project in Brazil is always an anomalous one (Martins, 2000). In the translations between an ideology of space and a practice on space, some the modernization project is lost. As we have seen in Belo Horizonte's foundation, in Pampulha and in Nova Lima, only parts of the modernizing projects are applied in highways, elite allotments and infrastructure. In this context, besides the practices of planning, allotting and regulating space we have seen also practices of improvisation, ad hoc legislation, and the taking space that is not given, adapting, settling, occupying where space is not planned and not designed. This is seen in all three cases, in the making space for workers during the construction of the city core, who occupied wherever it was possible despite planning, in the exceptions emerging in Pampulha's elite allotments interstices and in Nova Lima's places of otherness outside the condominium recipe. The investigations revealed not only a habitus of socio-spatial segregation but also durable systems of practices that make space across all three episodes.

In the 1940s the expansion towards Pampulha has gone in the opposite direction of the current urban and planning local discourses of a compact city, so does the sprawl towards Nova Lima from the following decade. In this new form of urban expansion, the 'living by nature' discourse used for real estate marketing is limited to a green image from the window and is materialised in a very urban format of living in high-rise towers with gated playgrounds supported by restaurants and services. The exposing of conflicts and tensions has thus revealed how the material reality of making space takes distance from the discourses and ideologies on space. The analysis has revealed thus, not only ideas on space but how those get translated on space.

The methods and approaches developed in this research have allowed to reveal, through the selection of emblematic episodes, a history of Belo Horizonte's historical urbanization in perspective. Aiming to ground and test the applications and local interpretations of urban models and urban studies methods, the research has produced a very specific and localized history of Belo Horizonte, that focuses on local practices while at simultaneously reflecting back on the global. It has revealed persistent *habitus* of city making despite the shifts of times, places, discourses, plans and strategies. However local, the lessons here learned are surely not exclusive to Belo Horizonte and might be expanded to other territories in Latin America and – why not - be considered for understanding urbanization processes worldwide. In addition to the diversification of sources and

understandings of urban history, the research has also succeeded in its combination of methods, starting with a rhizomatic approach to sources, later filtered, combined and organized through the interpretative lenses and interpretative cartography. It has thus brought new insights to urban history as well as urban studies methods that might serve other cases.

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Timeline of Belo Horizonte's Foundation

1750s – Inconfidência Mineira: first project to change the capital

1867 – Mr Paraizo's project to change the capital

1888 – Abolition of slavery

1889 – Proclamation of Republic

1890 – Curral d'El Rey changes the name to Arraial de Bello Horisonte

1891 – Brazilian Constitution

1891 – Minas Gerais' constitution

1891 – May / June - Discussions in the Congress about changing the capital

1892 – Establishment of the CELINC – Commissão D'Estudos das Localidades Indicadas para a Nova Capital – Study Commission of the localities appointed for the new Capital.

1893 – December - Law n. 3 additional to the constitution: determination to transfer the Capital do Belo Horizonte.

1894 – February - Decree 680 – regulates the Law n.3 and the formation of the CCNC.

1894 – Establishment of the CCNC – Comissão Construtora da Nova Capital (Construction Commission) under the administration of Aarão Reis

1895 – January – Decree 803 – regulates the sale of plots and the spatial organization of the city.

1895 – April – Aarão Reis publishes the plan for the new capital

1895 – June - Aarão Reis leaves the CCNC and is substituted by Francisco Bicalho

1895 – Railway inauguration

1897 – Foundation of Belo Horizonte's municipality

1898 – Dissolution of CCNC

1898 – October - Decree 1211 – Código de Posturas – code of conduct and building parameters

1898-1899 – Implementation of agricultural colonies

1899 – Creation of de Conselho Deliberativo – deliberations council

1901 – March – Decree 1453 – new building code

1902 – Decree 1516 – Special conditions for concession of land for industry and workers.

1909 – Decree 2846 – Establishment of workers' zone in the 8th Sector of the Urban Zone

1911-1914 – Emancipation of agricultural colonies

1919 – Law 178 – Authorized the government to create 'Vilas Operárias'- workers villages

Abbreviations

ADE	*Área de Diretrizes Especiais*	Special guidelines area
APCBH	*Arquivo Público da Cidade de Belo Horizonte*	Public archives of Belo Horizonte
APM	*Arquivo Público Mineiro*	Public archives of Minas Gerais
CCNC	*Comissão Construtora da Nova Capital*	Construction commission of the new capital
CELINC	*Comissão D'Estudos das Localidades Indicadas para a Nova Capital*	Study commission of the localities indicated for the new capital
COMPUR	*Conselho Municipal de Política Urbana*	Municipal council of urban policies
CPRM	*Compania de Pesquisa de Recursos Minerais. Serviço Geológico do Brasil*	Company of research of mineral resources. Brazilian Geological services
IBGE	*Instituto Brasileiro de Geografia e Estatística*	Brazilian institute of geography and statistics.
IPHAN	*Instituto do Patrimônio Histórico e Artístico Nacional*	National artistic and heritage institute
MBR	*Minerações Brasileiras Reunidas*	United Brazilian mining (company)
PDDI	*Plano Diretor de Desenvolvimento Integrado*	Masterplan of integrated development
PUC-Minas	*Pontifícia Universidade Católica de Minas Gerais*	Catholic University of Minas Gerais
UFMG	*Universidade Federal de Minas Gerais*	Minas Gerais' federal university
UNESCO	The United Nations Educational, Scientific and Cultural Organization	
ZEU	*Zona de Expansão Urbana*	Zone of urban expansion
ZP	*Zona de Proteção*	Protection Zone
ZR	*Zona Residencial*	Residential zone