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# URBANISATION AND LANDSCAPE JUXTAPOSITIONS IN MINAS GERAIS, BRAZIL: REVISITING HISTORICAL CARTOGRAPHIES

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The recent discussions following the biggest mining disasters in Minas Gerais bring to the fore the paradoxical relations between economical development versus mining ecological collateral damages, central in this state. Since the eighteenth century colonial gold rush, urban and territorial development in the region, rich in gold and iron, has long been paired with topographical manipulations related to the extraction of these prime resources. Since the foundation of its capital Belo Horizonte, created from scratch in the end of the 19th century, extreme manipulations of ground-surface conditions have not been limited to mining but are largely performed to allow urbanisation. Later, its first satellite town in Pampulha is exemplary of the critical entwinement between enclaved settlement formation and artificial ground operations, offering an inspiring terrain for re-imagining the relations between urbanisation and landscape. The paper addresses three moments in the history of Belo Horizonte, from colonial precedents to Pampulha, the spearhead of the entanglement of enclaved urbanism that is currently a dominant form of urbanisation in Brazil. Aiming to understand the complexity in the processes of transforming earth into land, territory is approached as a palimpsest, combining archival material with descriptive mappings done within the scope of the doctoral research.

## **Keywords**

Belo Horizonte, mining, urbanisation, landscape

## **How to Cite**

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## INTRODUCTION

The paper aims to foster reflections on the relations between (urban) development and landscape in the region of Minas Gerais, Brazil, through a historical perspective. Urbanisation and development will be tackled through mining, urban plans and projects as well as infrastructure implementation. Landscape is understood as the territorial material preexistences such as topography, water, soil and population.

In Minas Gerais, the efforts in engineered transformations of the landscape, the mining activities and the topographical amnesias<sup>1</sup> resulting from city materialization raise questions on the results of the (conflictual) juxtaposition of urbanisation and landscape. Taking the premise that the encounter of distinct materialities and oppositions between natural and artificial rationalities are subjected to the emergence of conceptual and physical fissures and cracks, this research seeks to expose what types of tissues and spaces emerge when imposed orders are transcended.

This investigation is done through the navigation of the three different times and spaces previously mentioned with special attention to the material outcomes of engineered landscape formation having archival cartography as a central tool. By confronting urbanisation and landscape this paper aims to question the resilience of imposed urban orders towards socio-material transcendences.

Since its consolidation in colonial times, extreme manipulations of ground-surface conditions have not been limited to mining activities but are largely performed to allow urbanisation to take place. In the province that carries mining in its name, the radical transformation of landscape is (continuously) not seen as impediment but rather as the motto for progress. Over time, engineering rationalities have been used to found new territories associating economic growth with territorial expansion. Such logics were applied to the establishment of its first capital Vila Rica de Ouro Preto, nestled on an impossible topography, but nevertheless a booming centrality during its golden era. Decadence advocated for its substitution, in a context of mineral shortage and extraction difficulties. At the turn of the 19th century, Belo Horizonte was designed and implemented as its opposite, where straight streets directly confronted a wavy topography rather than being meandered by it. Forty years later, additions and subtractions of land are again performed to allow urban horizontal expansion in the form of enclaved settlements with the damming of Pampulha creek.

## MINING LANDSCAPES

In colonial Brazil, and especially in the province of Minas Gerais, the course of exploitative colonisation was radically transformed as the discovery of gold and diamonds, easily accessible and in large quantities meant the enormous inflow of migrant miners and the establishment of many mining towns in the colony's hinterlands. The beginning of the 18<sup>th</sup> century saw the emergence of Vila Rica<sup>2</sup>, a village soon elevated to capital of the Province of Minas Gerais, as the region gained autonomy. The economic rise and fall of the golden period triggered a series of political and fiscal disputes that were crucial to the multilayered panorama of Brazil's independence, achieved in 1822<sup>3</sup>

According to Saint-Hilaire<sup>4</sup> a French naturalist traveller and explorer of Brazil's hinterlands, the sole reason for the foundation of Vila Rica in such locality was the great amount of gold found. Otherwise, it would have been impossible to choose a less favourable location. Unlike Humboldt, a contemporary explorer of South-America, Saint-Hilaire left no similar cartographical treasures. However, his extremely detailed descriptions offer rich understandings about the landscape, nature and culture found in his travels around 1817-1818<sup>5</sup>. Travelling 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 rich soil. However, some days later when

he approaches Vila Rica, his impressions are weighted by the feeling of melancholy. When descending the valley, the sight offered a succession of turned-over ground, dug for gold extraction, absence of vegetation, heaps of gravel scattered here and there giving an air of sadness to the landscape. Reaching the village nestled between two mountain ridges and unevenly occupying four hills, this sentiment endures<sup>6</sup>.

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 makes an attempt to describe it as been built over a long sequence of hills that border the river Ouro Preto, some advancing others retreating, some of them too steep to have houses on with poor vegetation and big excavations. Overall, the images of mining and sterile soil seemed to deeply strike him. For Richard Burton<sup>7</sup>, a later visitor, the most impressive aspect of Vila Rica was the amount of shapeless curves and narrow streets and, "amongst the many inconveniences of this town we can mention the circumstance of not being able to make use of cars. Even riding a horse is rather dangerous inside the city. There is no land for bigger expansion (...)"<sup>8</sup> Also for him, 50 years after Saint-Hilaire, the mining activity was something remarkable in the panorama, characterised by hills and reminding of the gold, "because everything had been turned over and removed by the *mineiro*"<sup>9</sup>.

The absence of precise colonial cartography revealed travel record literature as a useful tool for reconstructing an image of human-landscape relations at the time. Lacking drawings and measurements techniques, travellers relied on detailed territorial descriptions. As personal accounts, texts carry the writer's values and should therefore always be read through the lens of comparison from the writer's home or other environments seen along the journey. For example, when comparing the mining surroundings of Vila Rica to the previously visited forests, Saint-Hilaire's impression was of devastation and sadness.

The foreigners' testimonies help however to illustrate arguments repeatedly appearing in historical accounts on the foundation of Belo Horizonte<sup>10</sup> defending the urgent necessity for providing the province with a new capital due to the inadequacy of Vila Rica to fulfil this role. The topography in which it is inserted clearly made access, circulation and expansion impossible. The dark representations of decadence give background to the motivations and aspirations behind the horizontality of the plan presented for the new city.

In a simultaneous move of continuity and rupture, Belo Horizonte's foundation can be seen as a continuation of the *Inconfidência Mineira* (the insurgency against the Portuguese crown, initiated in Vila Rica in reaction of taxes applied to gold extraction) and also a rupture with its colonial past as it rejects the old colonial provincial capital as representative of the newly inaugurated Republic and its emergent modern society<sup>11</sup>. It is exemplary of Latin American urbanism in which the city was - and perhaps still is - largely used as the object through which modernity is achieved .

## THE NEW CAPITAL

The construction of a new capital for Minas Gerais had been a recurrent idea since Vila Rica's (today renamed Ouro Preto) decadent times but became a reality only after a decree in December 1893, which determined only four years for construction. The first step for the new endeavour was the formation of a team of technicians commissioned to choose the most appropriate location<sup>12</sup>. The engineer Aarão Reis, who studied at Escola Politécnica do Rio de Janeiro, being highly associated with positivism and follower of Saint-Simon and Auguste Comte, headed the group<sup>13</sup>. As demonstrated by Salgueiro, themes as hygiene, beautification and geographical and economic centrality appear several times in Reis' discourses concerned with the choice of locality for the new city. Indeed, the surveys reveal the influence of the "scientific reading of the landscape"<sup>14</sup>, a recurrent idea in France and Europe in the preceding century.

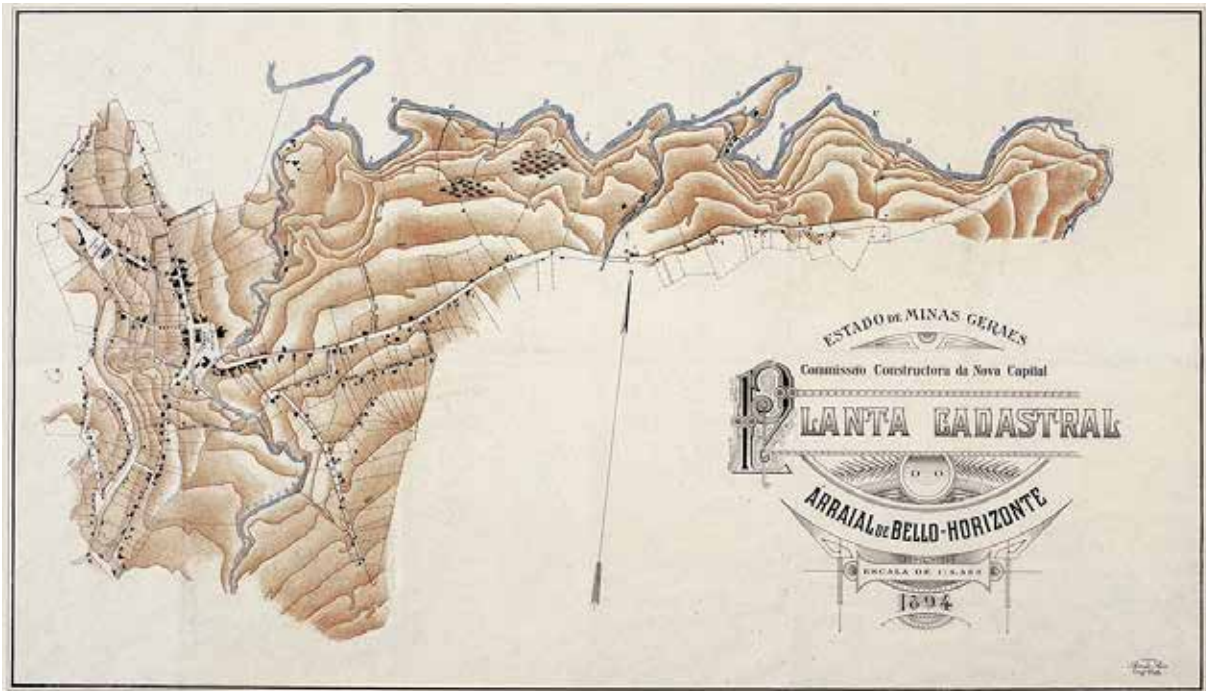


FIGURE 1 Cadastre plan Arraial de Belo Horizonte, 1895.

To deliberate between the candidate locations, the commission performed a profound analysis of their physical conditions including topography, soil, availability of water and construction materials but also economical and political factors as it was expected for the new capital to be the intellectual, economic and political centre of the state. It is interesting to notice that none of the candidate sites<sup>15</sup> was in a more or less flat location, announcing that topography was something to be tamed in Minas Gerais.

Despite all the scientific measurements presented in the technical report the decision was at last political. The victory of Belo Horizonte<sup>16</sup> reflects more the influential power of its economic groups, along with its strategic central location than its pure territorial attributes.

With little time for accomplishing the aim, works had to be performed simultaneously in three fronts: mapping the territory; cadastre and expropriation of land, farms and urban properties and finally locating and defining uses and accesses. These mappings were carefully executed through a positivist-oriented dissection of the landscape. In the two years that separated the decree and the launch of its final design, a great cartographical collection was produced, in several scales. The speed of the works suggest that the plan was elaborated almost in parallel to the site survey, possibly explaining the evident mismatches between the site's reality and the utopian project.

To found the capital of Minas Gerais, a territory of significant topographical features was soon confronted with the symmetrical array of perpendicular and diagonal streets proposed by the 1895 plan. By means of a strict geometry, “the city whipped out the history of Ouro Preto so the Republic could demonstrate the hypothesis of the State as a spatial structure, translating its ideals of form and function to geometry.”

The choices and influences of the planner are very poorly documented, probably due to his premature alienation from the *Comissão Construtora* in May 1895<sup>17</sup>, leaving therefore open grounds for educated speculations. As a son of the *Escola Politécnica*, it becomes clear that his design incorporated the main axis of the technical rationality, the one of circulation, fluidity, accessibility, speed, etc; as well as the belief in men's control over nature.

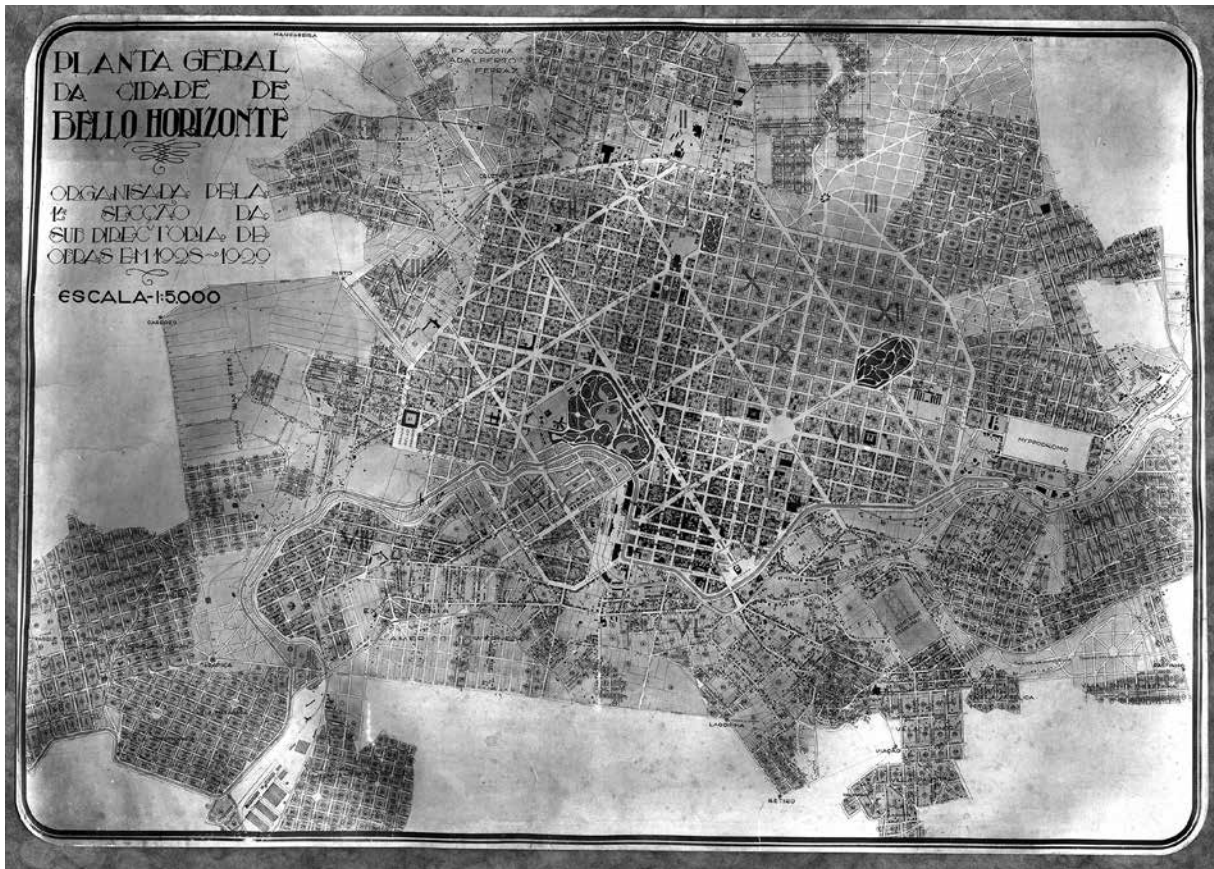


FIGURE 2 Cadastre plan of Belo Horizonte, 1928.

The plan, along with its implementation becomes exemplary not only of the status of urbanism and architecture at the end of the 19th century but also about the transference of models – or rather, “transculturating assimilation” that is so common in Brazil. The proposed grid has often been associated with the plan of Washington D.C, drawn by L’Enfant one century before, as well as with Haussmann<sup>18</sup>. However, as Corboz argued, while unpacking Washington’s plan himself, “it is not enough to identify an antecedent to conclude that it constitutes a precedent”<sup>19</sup>. A closer look between both plans reveal many similarities but also many differences. As its precedent, Belo Horizonte presents an orthogonal grid superimposed by a diagonal mesh. The blocks of Belo Horizonte were rigorously drawn with equal sides and all diagonals form a 45° angle in relation to the smaller mesh, perpendicular to each other and equally distributed. In opposition, Corboz has demonstrated that Washington’s grid is neither continuous nor symmetrical like it might seem. The “poetic of irregularity” he found in Washington will only appear in Belo Horizonte when the plan fails and its built differently due to territorial or social preexistences.

The contemporary criticism of the stark contrast between the site conditions and Reis’ plan, leads to the immediate interpretation of the ignorance of later in relation to the former, a general agreement in the critical historiography of Belo Horizonte. However, other authors suggest otherwise, highlighting for example the strategic position of *Praça da Liberdade*, the administrative core of Belo Horizonte in the highest topography, following of the classic Greek model of locating the centre of power in the highest point. According to Lemos, the carefully study of the local topography allowed the aesthetic and locational strategic organisation of space in search for the perfect perspective and functional efficiency.

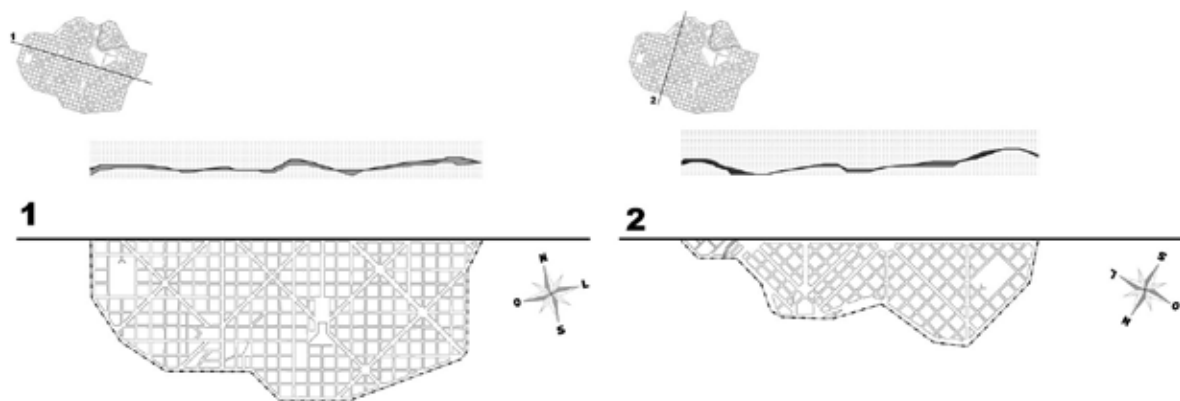


FIGURE 3 Schematic section comparing original topography and current.

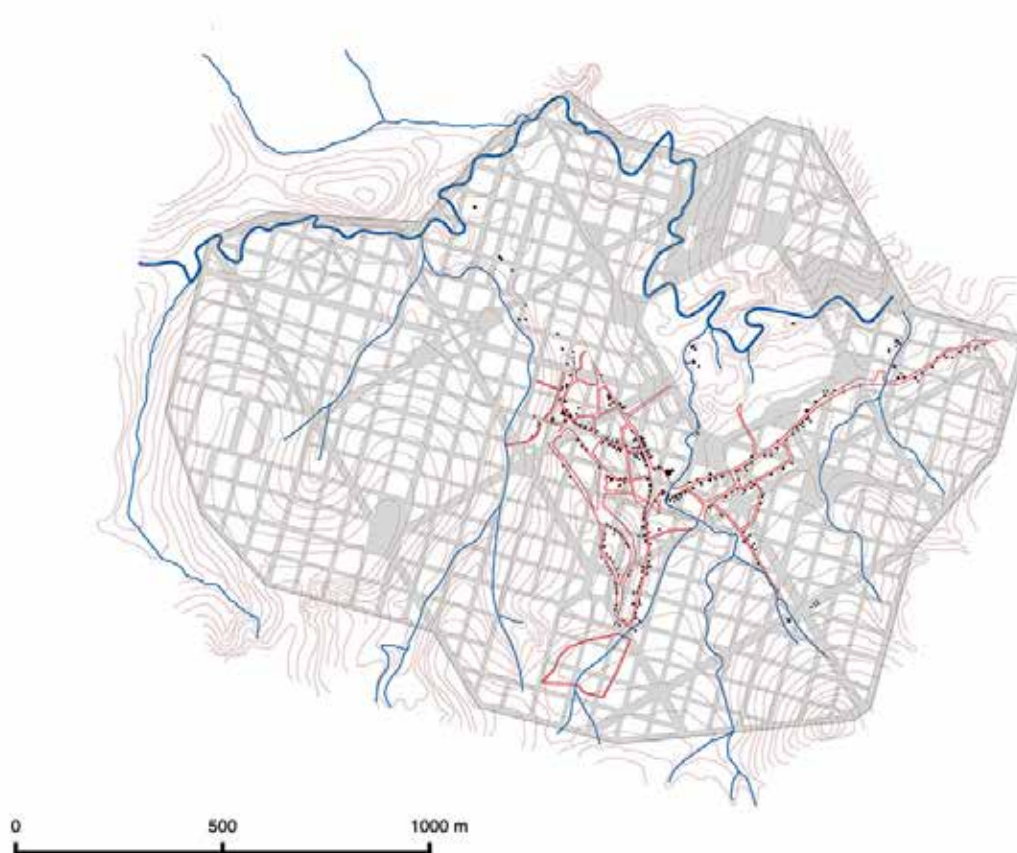


FIGURE 4 Plan of 1895 superimposed on old village plan.

However the good intentions, the mismatches between the orthogonal grid and the undulated topography with other pre-existences soon became very critical as the works for the canalisation of rivers and the addition of subtraction of soil delayed construction for many years and caused several disturbances in its occupation processes, which included expropriation and eviction in large numbers<sup>20</sup>. About one third of the plots were reserved for the functionaries of the State, who waited long to effectively move to the city partially doubting its success, partially waiting until it was developed enough. In addition, Belo Horizonte suffered, in its beginnings, the crisis of the coffee and the economic depression, meaning that only one third of its construction was concluded, leaving construction sites abandoned at the foundation level, contributing to the formation of a paradoxical image of decay and progress. The last component to be mentioned in this equation is the fact that the plan didn't foresee the housing of the people who were (manually) building it. The unreserved were put on auction in high prices with unreachable conditions for the poorer. Builders and migrants from all over were temporarily allowed to "camp" inside the urban core, but were eventually evicted as urbanisation advanced. This situation led to the emergence of the first favela of Belo Horizonte, over the steepest hill across the Arrudas valley, over a small section of the foundational plan cut-off by the railway and the river and the last to be urbanised. In fact, the tissue built there goes completely in discordance with Reis' plan. After the first favela, many others came and their populations were constantly evicted and re-settled.

Another consequence of dysfunctional construction and occupation processes of Belo Horizonte relates to its demographical and physical expansion in contrast to its internal vacancy. While most of the internal core was either still under construction or reserved, a great portion of its suburban and rural zones were being occupied rather spontaneously. Most of it was done by the gradual urbanisation of the surrounding agricultural colonies, established simultaneously to the city's inauguration. Starting from the 1920s many workers villages started to materialize in the green belt of Belo Horizonte in response to its obvious incapacity to host the workers inside the urban core despite many efforts to control informal settlement expansion, inaugurating a pattern of patched urbanisation.<sup>21</sup>

## PAMPULHA'S DAM

Only forty years after its foundation, Belo Horizonte already inaugurates its first satellite town 12 km north from ground zero. Pampulha was to Belo Horizonte what it was to Vila Rica. As the precedent foundational core, its emergence represented simultaneous continuation and rupture. Rupture in the sense that it breaks away from the rigidity of the grid and starts a new form of occupation in a 'virgin' location according to new principles; continuous in the sense that it is also foundational, it is essentially segregative and, however less radically, its construction is associated with intensive ground manipulations.

Pampulha was inherently different from the many workers villages that had been appearing since the previous decade at the immediate surroundings of the city's foundational core, done completely by private enterprise, still highly attached to the city. These patches emulated the grid model, trying as much as possible to belong to the city, containing smallest possible plot sizes for the workers unable to afford living at the elite dominated areas inside the urban zone. Instead, Pampulha was established completely detached from the existing city and, in similarity with the foundational plan, disregarding preexistent villages. Differently from its predecessor the morphology of its streets attempts to more adequately fit to the topography previously manipulated for its sitting.

The first documented ideas about constructing a new and exclusive neighbourhood appear almost simultaneously to beginning of the construction of the Pampulha dam, making it difficult to imagine that the idea of taking advantage of the beautiful landscape in formation comes as a genuine and obvious consequence of technical rationalities. It is instead more likely the hypothesis of the marriage between both ideas. In the administrative reports written by mayor Negrão de Lima the construction of the dam comes as a solution for the water supply of the city, given its overwhelming demographic growth and physical expansion. The choice of Pampulha creek is

defended as the less costly and therefore more favourable solution in comparison to the Arrudas river, bordering the city core, which valley was already occupied by railway and industry. Soon later, the same mayor announces in a speech at the municipal chamber the “edification of a new and picturesque leisure neighbourhood”<sup>22</sup> Later, in the context of metropolitan territorial articulation, Negrão de Lima mentions Pampulha as one of the satellite towns having Belo Horizonte as centre in a highly centralised system in which each town would have a specific function: agriculture, industrial or housing, while Pampulha’s role was tourism and entertainment. The slow development of Pampulha meant that it was far from being a satellite town, being incorporated in the city’s administrative limits decades before it became independent in terms of services.

Yet various documents witness the construction of Pampulha, no holistic plan that spatializes the reservoir and bordering neighbourhoods could be found. Besides the above-mentioned report, rather detailed maps elaborated by the Secretary of Agriculture, witness the topography, hydrology, surface-use and urbanisation in 1936 and 1940 at the city scale. The exercise of analysis and re-mapping of archival cartography supported by textual material allowed, through comparison, better understandings on the transformations in the landscape in the period. The map of 1936 depicts urbanised areas by a heterogeneous puzzle of grid patches. They are alternatively represented in full or dotted lines, leaving ambiguous interpretations between the real city and its imagined future. A patchwork of hatches indicates intensive farming, while small preexisting villages also figure, detached from Belo Horizonte’s daily life.<sup>23</sup> Interestingly, it displays a projection of a first neighbourhood to be constructed at the future shoreline, while no sign of the dam is seen and only the creek is represented. The map of 1940 shows the completed dam and still a projection of a future occupation, similarly to the previous representation.

Such picturesque leisure neighbourhood was nevertheless designed for a very selected elite. Following the steps of the foundational core, Pampulha’s new settlements established no relation with its previous occupants nor its previous morphologies. The new urban materiality of Pampulha was determined not only by the strong figure imposed by the lake and tributary creeks, but also the urban parameters that regulated its materialisation. To ensure that the shoreline would be populated primarily by weekend-homes and therefore by the local elite, a decree determined its legal and spatial exceptionality already in 1939. Outstanding from the rules guiding land subdivision since 1935, it determines special conditions to allotments to be performed at the shoreline. Firstly, the Municipality was to perform the projects, measurements and topographical levelling by request - and of course payment - of the owners. As Reis’ plan, Pampulha is exceptional in a scenario of privatised urbanism where all land allotments are completely private enterprises, from project to plot selling. Segregation was secured by the establishing a minimum plot size of 1000 square meters and 20-meters-front, almost three fold the regulations applied to the rest of the city (360 sq m and 12 m front). As the city didn’t launch its first land use zoning law until 1976, a premature zoning defined housing and commerce areas while industrial use was strictly forbidden within the shoreline strip.

The archives of the municipality administration contain the allotment (cadastre) plans, which are the closest witness found to the original design of these enclaves. Although they are presented in fragments, according to land property, they all contain the approval stamp and signature of the then mayor Juscelino Kubitschek in 1943 and, patched together, form a (sort of) cohesive urban form. Besides following ownership the morphology of the fragment is also determined by geography: they more or less try to follow a topographic logic leaving gaps along Pampulha’s tributaries, to be later otherwise filled.



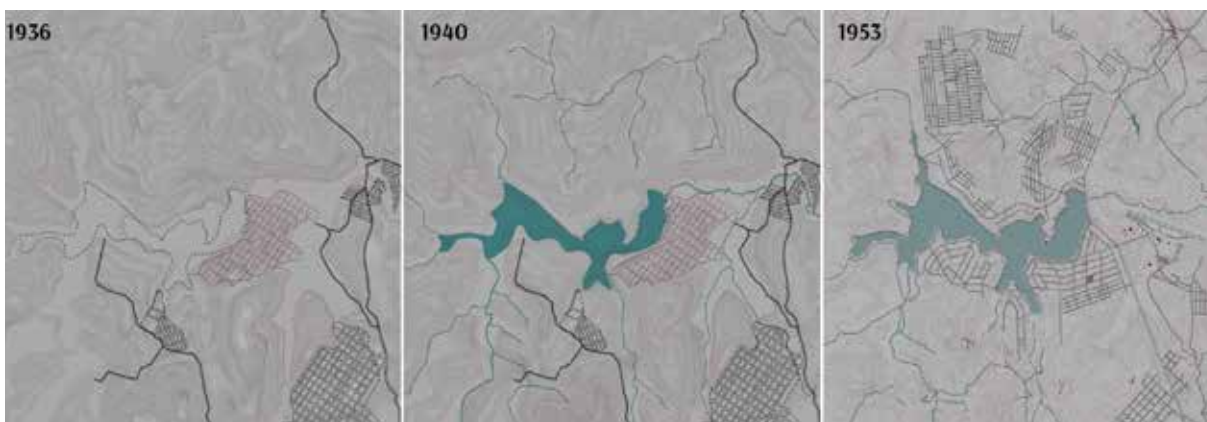


FIGURE 5 Maps of 1936 and 1940.

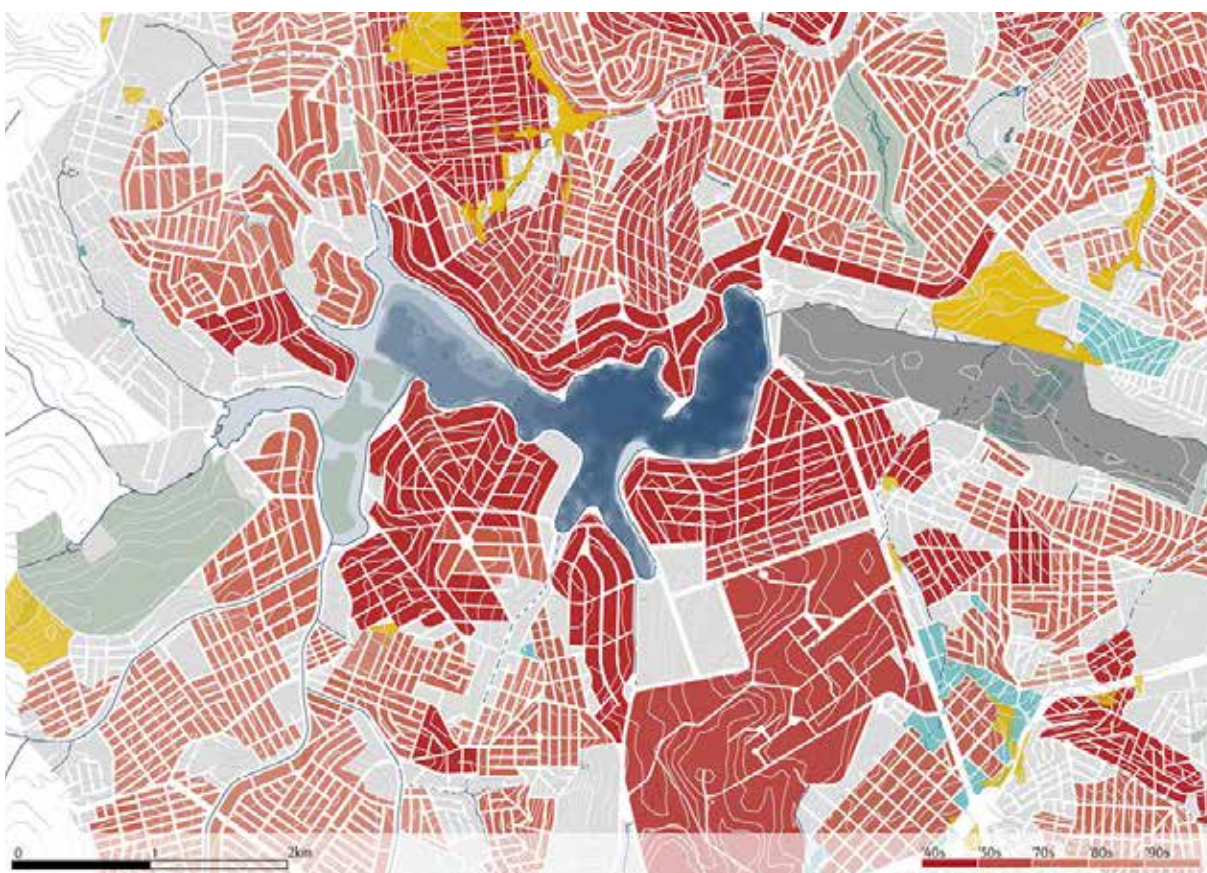


FIGURE 6 Composition of cadastre maps by date of approval.

After its inauguration, Pampulha went through a sleepy period, serving mainly as a weekend destination for some decades. It would be only after the mid-1970s that the region starts consolidating, as Belo Horizonte's concentric expansion starts to reach as far as the lake. The first zoning law instigated the formation of a second ring of patch-worked allotments around the reservoir targeting middle class groups with plots of around 360sqm. From this moment on, Pampulha starts to mutate from a mono functional isolated rich enclave to a more diverse and cohesive urban realm. The gradual and spontaneous occupation not only on new allotments but mainly in the gaps left in-between have allowed the insertion of other typologies, uses and diverse social groups. Avenida Flemming can be cited here as an example of this phenomena. Having a creek at its axis, the avenue was only implemented in the 1980s, with canalisation. Holding for a long time in this transitional state, the avenue is still slowing being occupied by diverse uses such as restaurants, student and social housing, educational and sports facilities. Lately, it is been advertised as the centre of social life of Pampulha, a region that went through decades of being 'center-less' still depending on the traditional city centre for commerce and, surprisingly, cultural activities.

At the other hand, the pioneer elite neighbourhoods such as São Luiz and Bandeirantes have been frozen by successive restrictive regulations under the flags of heritage and environmental protection and suffer today from abandonment, security and identity crisis. The view of the lake is no longer valuable when its waters have been highly polluted for more than two decades due to the intensive and uncontrolled urbanisation along its tributaries.

## CONCLUSIONS

The focus on the relations between urbanisation and landscape in the central region of Minas Gerais, a territory highly marked by its geomorphological features, allowed an overview of different tactics and material outcomes related to practices of taming of landscape as a tool for development.

In the past, ground conditions have determined the materialisation of a fragmented and dysfunctional urbanity, advocating for its substitution. While the particular (under) ground features of Vila Rica were essential preconditions for its development, they were also barriers for growth.

At the foundational core, the factual difficulties in reconstructing landscape while attempting to stamp preconceived images on territorial pre-existences – including topography, soil, water bodies and population - have resulted in syncopated developments, exemplified by Belo Horizonte's inverted growth, from the outside to the inside.<sup>24</sup> The confrontation between the surveyed socio-material realities and the plan has revealed a selective gaze towards the territory that borders schizophrenia. After having examined the pre-existing village with precision, its forms and population were ignored when conceiving the new city.

Similarly, the urbanisation of Pampulha was done on the basis of the construction of a new landscape through lake formation. In a less holistic transformative approach, the first settlements of the satellite occupation took advantage of the better topography, enjoying viewpoints to the lake and taking distance from the tributary creeks, the only truly natural features of the site. Similarly as in the foundational core, the "borders of civilisation", the leftover spaces outside the grid, have been left for the less privileged and therefore subjected to spontaneous occupation processes.

The partial results of this research have identified contextual ground materialities – topography, hydrology, population - as the main structuring elements for urbanisation, which transcend urban projects and can be potentially used as tools to historical reviews but also projectively. As seen in the studied cases, when landscape is confronted by urbanisation (here interpreted through the implementation of urban plans and projects), the outcomes are perceived as much in ground transformations as in adaptations and exceptions made in the imposed orders. Rather than interpreting as failures of the plan or incomplete modernities, the processes here exposed exemplify the resilience that is culturally embedded in Latin American, having improvisation and incrementing as central tactics.

## Disclosure Statement

No potential conflict of interest was reported by the author.

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## Image Sources

Figure 1: Arquivo Público Mineiro

Figure 2: Arquivo Público Mineiro

Figure 3: Elaborated by the author over data provided by Prodabel

Figure 3: Elaborated by the author over data provided by Prodabel and Arquivo Público Mineiro

Figure 4: Elaborated by the author over data provided Arquivo Público Mineiro

Figure 5: Elaborated by the author over historical maps available at Arquivo Publico Mineiro and Escola de Arquitetura / UFMG

Figure 6: Elaborated by the author over data provided by Prodabel and Sistema Plantas Online – SPOL

## Endnotes

- 1 Teixeira, Carlos M, and Louise Ganz. "Amnésias Topográficas I-II, Belo Horizonte, Brazil." (LOTUS INTERNATIONAL, 2004), 118-119.
- 2 A community named Antonio Dias was elevated to municipality and re-named Vila Rica. The name is a reference to the richness found in its soil.
- 3 Others factors contributing to this scenario are certainly the transference of the metropolis, due to Napoleonic advancements and surely the recent independence movements in North-America.
- 4 Saint-Hilaire, Auguste de. "Voyage dans les provinces de Rio de Janeiro et de Minas Geraes." (1830).
- 5 This expedition any many others occurring at the same time were allowed after 1808, when the Portuguese court is transferred to the Brazilian territory elevating it to a Metropolis and therefore opening its ports for foreigners. It generated the influx of all sorts of explorers and naturalists, curious about the virgin nature.
- 6 Perhaps Saint-Hilaire was there in the wrong time, when decadence was at its peak. In addition the particularity of the local climate might have influenced his impression: more humid than the surroundings, with an almost ubiquitous fog.
- 7 Burton, Richard. *Viagens aos planaltos do Brasil: Minas e os mineiros*: Companhia editora nacional. (1983, Original edition, 1869), 60
- 8 free translation by the author. In the Portuguese version: "Entre os muitos inconvenientes dessa cidade podemos mencionar a circunstância de não se poder fazer uso de carros. Mesmo montar a cavalo é um tanto perigoso dentro da cidade. Não há terrenos para maior expansão; as ruas são demasiado estreitas para nelas serem colocados trilhos e a região é imprópria para o "carro de ferro". Richard Burton, *Viagens Aos Planaltos Do Brasil: Minas E Os Mineiros* (Companhia editora nacional, 1983), 63.
- 9 Burton, *Viagens aos planaltos do Brasil*, 78
- 10 Abílio Barreto, *Belo Horizonte: Memória Histórica E Descritiva*, vol. 2 (Imprensa Oficial Minas Geraes, 1928); Belo Horizonte Plambel, "O Processo De Desenvolvimento De Belo Horizonte: 1897-1970" (Belo Horizonte1979); João Bosco Moura Tonucci Filho, "Dois Momentos Do Planejamento Metropolitano Em Belo Horizonte: Um Estudo Das Experiências Do Plambel E Do Pddi-Rmbh" (Universidade de São Paulo, 2012).

- 11 Paula, João Antônio de, and Roberto Luís M. Monte-mór. "Formação histórica: Três momentos da história de Belo Horizonte." CEDEPLAR FACE/UFMG, Belo Horizonte. (Belo Horizonte: 2004)
- 12 Despite Belo Horizonte being already suggested by the then president Afonso Penna as a location, disputes amongst groups in the province called for the comparison between four sites.
- 13 Lins, Ivan. "História do positivismo no Brasil.", 1967.
- 14 Expression used by M. Roncayolo, "Le paysage du savant". *Les lieux de mémoire*. La nation III, dir. Pierre Nora, Paris, Gallimard, 1986, cited by Heliana Angotti Salgueiro, *Cidades Capitais Do Século XIX: Racionalidade, Cosmopolitismo E Transferência De Modelos* (EdUSP, 2001).
- 15 Paraúna, Barbacena, Juiz de Fora, Várzea do Marçal and Arraial de Bello Horizonte, the old Curral D'El Rey
- 16 Belo Horizonte won by two votes over Várzea do Marçal, in a dispute between congressmen representing all regions of the state, but basically divided between pro-change and against-change. The terms used by Maria Efigênia Lage is "mudancistas" and "antimudancista" (Lage 1974 cited by Plambel 1979)
- 17 Maria do Carmo Andrade Gomes, "Aventura Cartográfica Na Cidade Nascente," *Revista do Arquivo Público Mineiro* 46, no. 2 (2010), 2010
- 18 Ibid; Plambel, "O Processo De Desenvolvimento De Belo Horizonte: 1897-1970 "; Tonucci Filho, "Dois Momentos Do Planejamento Metropolitano Em Belo Horizonte: Um Estudo Das Experiências Do Plambel E Do Pddi-Rmbh"; Celina Borges Lemos, "A Cidade Republicana: Belo Horizonte, 1897-1930," in *A Arquitetura Da Modernidade*, ed. Leonardo Barci Castriota (Belo Horizonte: IAB-MG, 1998); Salgueiro, *Cidades Capitais Do Século XIX: Racionalidade, Cosmopolitismo E Transferência De Modelos*.
- 19 In the original: "Car it ne suffit pas d'identifier un antécédent por en conclure qu'il constitue un précédent. André Corboz, *Deux Capitales Françaises: Saint-Petersbourg Et Washington* (Infolio, 2003), 70.
- 20 With the complete demolition of the old village 430 properties were expropriated, 2000 inhabitants were removed and compensated.
- 21 Already in 1902 the western portion of the central core, the 8a section, today's Barro Preto was reserved for industrial workers to whom were given free and temporary concessions in order to avoid the uncontrolled growth of favelas. Around 2000 people were removed from favelas and allocated in this area. Samuel Silva Rodrigues de Oliveira, "A Identificação Das Favelas Em Belo Horizonte," in *XVII Simpósio Nacional de História*, 2013 (Natal: UFRN, 2013, 2013); Plambel, "O Processo De Desenvolvimento De Belo Horizonte: 1897-1970 ".
- 22 *Anais da Câmara Municipal de Belo Horizonte*, 1936 cited by Luana Maia Ferreira, "As Várias Pampulhas No Tempo E No Espaço," in *Pampulha Múltipla*, ed. Thais Pimentel (Belo Horizonte: AAMHAB, 2007).
- 23 Flavio de Lemos Carsalade, *Pampulha, Bh. A Cidade De Cada Um* (Conceito, 2007).
- 24 The cadastre map of 1928 (Figure 2) illustrates well the phenomena.