

Land dynamics and urban form: the Baron of Itapura as a shaping agent in Campinas, Brazil (1869–1900).

Lógicas fundiárias e a forma urbana: o Barão de Itapura como agente modelador de Campinas-SP (1869–1900).

Lógicas del territorio y forma urbana: el Barón de Itapura como agente forjador de Campinas-SP (1869-1900).

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Abstract

This article examines the transformation of urban form in the city of Campinas, São Paulo, Brazil, between 1869 and 1900, focusing on the conversion of rural properties into urban fabric through the agency of a key shaping agent: Joaquim Policarpo Aranha, the Baron of Itapura. The case study centers on Chapadão Farm, a major landed estate in the region, and the adjoining Itapura rural property in the peri-urban area. Concepts and methods from urban morphology and Historical Geographic Information Systems (HGIS) are employed to reconstruct territorial and urban transformations during this period. The methodology combines the analysis of primary textual and cartographic sources, which were georeferenced and mapped using QGIS. The findings demonstrate that examining multiple scales and temporalities is essential for understanding the continuities and transformations of territory and urban form.

Keywords: Historical Geographic Information Systems (HGIS); Shaping agents of urban form; Urban Morphology; Land dynamics, Campinas, Brazil

Resumo

Este trabalho explora o processo de transformação da forma urbana de parte da cidade de Campinas-SP, entre 1869 e 1900, a partir da conversão de propriedades rurais em tecido urbano, sob a perspectiva das ações de um agente modelador: Joaquim Policarpo Aranha, o Barão de Itapura. O estudo de caso focaliza a fazenda Chapadão, um importante latifúndio da região, e a chácara Itapura, propriedade anexa a esta fazenda, localizada no espaço periurbano. Utilizam-se conceitos e métodos da morfologia urbana e do SIG Histórico como meio de reconstituir, hipoteticamente, as transformações no território e no tecido urbano de Campinas-SP. A metodologia abrange a análise de fontes primárias, textuais e cartográficas, que foram espacializadas em mapas georreferenciados, utilizando o software QGIS. A pesquisa demonstra que a análise de escalas e temporalidades diversas é essencial para compreender as permanências e transformações do território e da forma urbana.

Palavras-chave: SIG Histórico; Agentes modeladores da forma urbana; Morfologia Urbana; História fundiária; Campinas-SP.



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Resumen

Este trabajo explora el proceso de transformación de la forma urbana de parte de la ciudad de Campinas-SP, entre 1869 y 1900, a partir de la conversión de propiedades rurales en tejido urbano, desde la perspectiva de las acciones de un agente modelador: Joaquim Policarpo Aranha, el Barón de Itapura. El estudio de caso se centra en la hacienda Chapadão, una importante hacienda de la región, y en la hacienda Itapura, una propiedad anexa a esta hacienda, ubicada en la zona periurbana. Se utilizan conceptos y métodos de morfología urbana y SIG Histórico como medio para reconstruir hipotéticamente las transformaciones en el territorio y tejido urbano de Campinas-SP. La metodología abarca el análisis de fuentes primarias, textuales y cartográficas, las cuales fueron espacializadas en mapas georreferenciados, utilizando el software QGIS. La investigación demuestra que el análisis de diferentes escalas y temporalidades es esencial para comprender la permanencia y las transformaciones del territorio y la forma urbana.

Palabras clave: SIG histórico; Agentes que configuran la forma urbana; Morfología urbana; Historia de la tierra; Campinas-SP.

Urban analysis must seek to understand the phenomena that sustain the city over time. The study of urban form is therefore inherently diachronic and shaped by complex and interrelated determinants. (Panerai, 2008, p. 66, author's translation).

INTRODUCTION¹

Urban form results from the actions of multiple shaping agents (Vasconcelos, 2009), who produce it in accordance with their particular characteristics (Lepetit, 2016, p. 46). The State, economic actors, the Church, social movements, and even certain individuals exemplify agents involved in shaping urban form. The forms produced through their agency materialize across scales, from the territorial to the intra-urban level.

This article examines the transformation of urban form in part of the city of Campinas, Brazil, between 1869 and 1900, focusing on the incorporation of rural properties into the expanding urban fabric through the actions of a key shaping agent: Joaquim Policarpo Aranha, Baron of Itapura². Throughout the 19th and early 20th centuries, members of the Souza Aranha family, part of a landed elite, devised strategies to expand their holdings, which materialized in territorial and urban infrastructure as well as in the physical configuration of part of the city. The case

¹ This article is based on a paper presented at the 18th Seminar on the History of the City and Urbanism (Natal, RN, Brazil, November 2024). It was subsequently revised to include georeferenced maps and additional findings, incorporating discussions from the Open Session "The use of geotechnologies for digital narratives of urban history."

² Joaquim Policarpo Aranha was granted the title of Baron of Itapura by imperial decree in 1883.



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study centers on the Chapadão Farm, a major landed estate in the region, and the Itapura rural property adjoining it. By the late 19th century, the property and its main building, the Itapura Palace, occupied a privileged position in the peri-urban area of Campinas. The palace's main façade, aligned with one of the property's boundaries, faced the urbanized area, and its architecture embodied the social status of its owner.

The concepts of morphological periods (Conzen, 2022) and urban fabric (Panerai, Castex, Depaule, 2013; Panerai, 2008, 2014), together with methods from the Historical Geographic Information Systems (HGIS)³, are employed to hypothetically reconstruct the transformations of part of the territory and urban fabric of Campinas, SP, Brazil, between 1869 and 1900. The analysis draws on contributions from urban history, particularly the work of Lepetit (2016), who demonstrates that examining multiple scales and temporalities is essential to understanding both the continuities and the transformations of territory and urban form.

The methodology encompasses the analysis of primary textual and cartographic sources, which were spatially represented in georeferenced maps using QGIS⁴. The analysis of the (trans)formation of the urban fabric requires an understanding of history of land ownership. In this sense, the production of thematic cartographies highlighting morphological periods constitutes an efficient method applicable to different spatial and temporal contexts.⁵

Urban Morphology and HGIS: Foundations, Contributions, and Perspectives

Within the field of urban morphology, research has examined shaping agents as an interpretive framework for analyzing the production and transformation of urban space. The study by Abreu, Lima, and Fischer (2018) contributes to recent Brazilian morphological research by demonstrating how 19th-century urban spaces were shaped through the interaction between normative frameworks and the constraints of the natural site. The morphological characteristics of settlements and the location of their open spaces result from both the relationship between the legal-administrative structures governing land ownership and the natural site on which they are established, and from a geometric rationality expressed in the concepts of "regularity" and "alignment" (Abreu, Lima and Fischer, 2018, p. 4).⁶

3 HGIS is a conventional term used to describe research that employs geospatial technologies to support historical analysis. Geotechnological tools applied to historical research enable the structuring of diverse data within the same area, facilitating the interpretation of temporal overlaps and territorial contexts with greater precision and dynamism.

4 Although previously investigated (Menegaldo, 2019), the use of HGIS in this study allows for a more refined analysis and integration of data on land tenure structures.

5 This paper originated from studies conducted within the research group History of Cities: Territorial Occupation and Urban Ideologies (*História das Cidades: Ocupação Territorial e Ideários Urbano*), affiliated with the Graduate Program in Architecture and Urbanism at PUC-Campinas (Ferreira, Pereira, and Menegaldo (2022); Ferreira (2022); Menegaldo (2019; 2024)).

6 This approach highlights how principles of land use planning and formal standardization have been incorporated into the urban landscape and operate as key foundations for understanding structural continuities in the fabric of Brazilian cities, in line with the proposal of this study.



The concept of “shaping agents,” discussed by Vasconcelos (2000; 2009; 2020), refers to individuals, institutions, or social groups that have played an active role in shaping urban space. Their actions contribute to defining territorial occupation and the production of urban space, revealing how social, political, and cultural factors materialize in spatial form. Barbosa (2011) employs this concept to analyze the formation of the city of Aracati, in the state of Ceará, Brazil during the colonial period, demonstrating how shaping agents articulated strategies that defined the urban layout and land use and highlighting the importance of interpreting the urban landscape as a repository for memory and identity.

According to Panerai, Castex, and Depaule (2013), the aim is to understand urban form as the result of historical and social processes, highlighting the importance of morphological analysis in the transformation of the city:

The relative autonomy of urban form, which we have tried here to highlight, is not an absolute autonomy. It does not exclude either the economic or cultural determinants, which have their significance in the production of the city and of architecture, nor the pressure of social conditions of the life of the city's inhabitants (Panerai, Castex, and Depaule, 2013, p. 2).

The use of geotechnologies in urban history research has expanded since the beginning of the 21st century, offering new possibilities for the analysis of spatial and temporal data. These technologies enable the creation of thematic historical maps, the visualization of urbanization patterns, and the identification of relationships between historical and geographic phenomena. Among the technologies most widely used by urban historians, GIS (Geographic Information Systems) stand out (Debats and Gregory, 2011). When applied to the study of the past, they are referred to as HGIS. As a methodological approach in urban history, HGIS provides tools to organize historical information and visualize it within its geographic context, allowing the examination of different scales and temporalities and the integration of diverse types of data within a single spatial framework (Knowles, 2008).

In this line of inquiry, we highlight the work of Barbour (2023), who developed a GIS to map land purchase and sale transactions in the Pari neighborhood of São Paulo city, Brazil, between 1890 and 1900. Based on the spatialization of data extracted from land registry records, the author reconstructs the process of subdividing small farms and implementing infrastructure, demonstrating how location and urban services influenced real estate values. The study represents an advancement in the use of HGIS by revealing land dynamics and urbanization patterns that were not previously evident in textual sources.

Bueno's research (2005, 2016, 2019), focusing on the historic center of São Paulo, demonstrates the potential of GIS for spatializing large datasets and producing thematic maps at the lot scale. From a long-term analytical perspective, his work



sheds light on the historicity of urban fabrics and the articulations among various agents in the formation of a rentier real estate market in São Paulo since the early 19th century.

Recent studies have focused on the use of GIS in historical research, employing QGIS software (Ferreira, 2022; Ferreira and Pereira, 2023). By articulating territorial and urban scales, their study analyzes the formation of the urban network and fabric of municipalities located in the northeastern region of the state of São Paulo in the 19th century. The methodology, developed within the research group, includes the spatialization of information collected from textual sources, such as parish land registers⁷ and ecclesiastical documents. The use of HGIS as a tool for analyzing the historicity of urban form reinforces the experimental nature and contribution of this study.

Methodological approaches to analyzing the actions of a shaping agent in Campinas, São Paulo.

The methodology of this research is based on the careful selection of primary sources of different types and is based on the diachronic⁸ analysis of textual and cartographic documents, focusing on the identification of toponymic continuities. The recurrence of toponyms and geographic references makes it possible to spatialize land boundaries and understand their transformation into urban fabric. Cross-referencing serial documentary sources enables the identification of territorial aspects that are not evident through conventional reading.

The elevation of Campinas to city status in 1842 consolidated the municipality's strategic role in the interior of São Paulo, driven by the agro-export cycles of sugarcane and coffee. This context favored the rise of a landed elite whose land practices and patrimonial alliances shaped the territory (Menegaldo, 2024). Among the representatives of this landed elite, Joaquim Policarpo Aranha, Baron of Itapura, stands out. His actions articulated investments and land strategies that were fundamental to the configuration of Campinas's urban space.⁹

Joaquim Policarpo Aranha's family and social conduct followed the traditional patterns of the landed elite, grounded on strategies aimed at maintaining and expanding landholdings. Through an endogamous¹⁰ marriage and the appreciation

7 These are nominal records of rural properties, produced in all parishes of the Empire between 1854 and 1857, as a result of the Land Law of 1850 and its regulation of 1854. The documents typically include the name of the property, its boundaries, method of acquisition, and land use, among other things.

8 The main documentary series used are: post-mortem inventories and inventories during life (amicable divisions), property deeds, minutes of the Campinas City Council, periodicals, coffee tax books, parish land registers of Campinas, deed books, aerial photographs, historical cartography, historic photographs, and the remaining structures.

9 Joaquim Policarpo Aranha was born in 1809 in "Vila Nova de Castro", then belonging to the captaincy of São Paulo, judicial district of Curitiba. He was the son of José Francisco Aranha Barreto de Camargo and half-brother of Manoel Carlos Aranha, later Baron of Anhumas, and arrived in the territory of the town (vila) of São Carlos in the beginning of the 19th century (SÃO PAULO, 1814).

10 In 1843, Joaquim Policarpo Aranha married his second cousin, Libânia de Souza Aranha, with whom he had six children—a union that reflects a traditional logic of reproducing family capital, in which blood ties functioned as strategies for preserving wealth and power (Bacellar, 1997, p.113).



of lands linked to sugarcane and, later, coffee production, he established himself as a prominent businessman, articulating economic, land, and political interests. His trajectory was marked by involvement in various spheres beyond agricultural production, extending to investments in private enterprises such as railroads, banks, urban infrastructure, and philanthropic initiatives associated to the Church. Among his strategies, the use of land as an asset for appreciation stands out, since the expansion of the city was directly tied to the interests and actions of a local elite operating at the intersection of land capital, family alliances, and institutional power. By the end of the 19th century, Joaquim Policarpo Aranha had accumulated an extensive rural estate, among which the Chapadão Farm stands out for its strategic location, valued both for its integration into the railway network through the Mogiana Company line and for its role in processes of urban expansion and land subdivision (Figure 1).

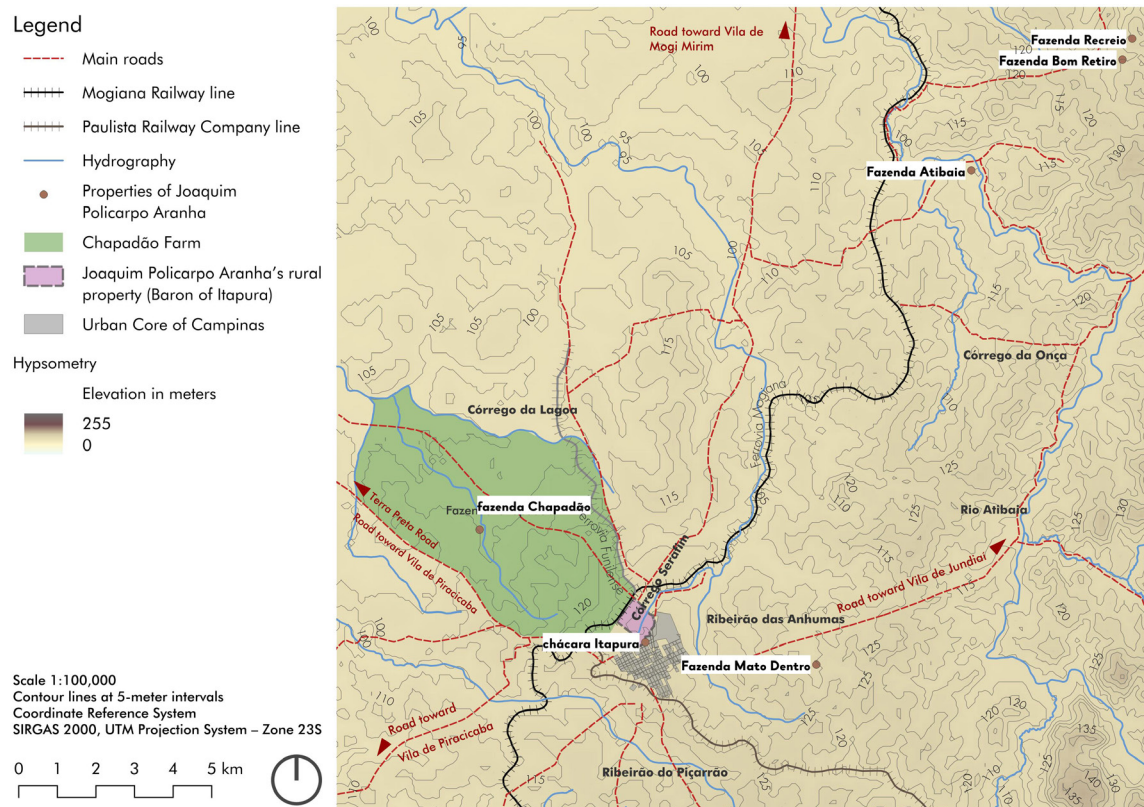


Figure 1: Spatial distribution of Joaquim Policarpo Aranha's properties within the city limits of Campinas, São Paulo, Brazil (1809–1889). Prepared by the authors using QGIS.

Spatializing the past: HGIS and the territorial reconstruction of the Chapadão Farm in Campinas, São Paulo

Sugarcane and coffee sustained the economic base of Campinas in the 19th century under an agrarian-mercantile system marked by complex relationships among local landed families (Bacellar, 1997; Petrone, 1968). From 1850 onward,



the accumulation of capital generated by the coffee economy spurred the diversification of investments and income sources, consolidating Campinas as a strategic center in the province (Bianconi, 2002, p. 67). The advance of industrialization and urbanization transformed both the land structure and the patterns of land occupation, and Joaquim Policarpo Aranha, attentive to these changes, recognized that his financial stability required new investments beyond the slave-based system.

The arrival of the railroad in Campinas¹¹ in 1872 marked a phase of urban modernization and increased the profits of local capitalists (Anunziata, 2013). The initial line, between Campinas and Mogi Mirim, crossed lands belonging to Joaquim Policarpo Aranha, including parts of the Itapura estate and the Chapadão Farm, thereby facilitating the flow of agricultural production. Also in 1872, he donated part of the estate for the installation of the city's first gasworks, an action that led to the opening of Dona Libânia Street (Figure 3), later the starting point for the horse-drawn tram system implemented in 1879.

Among the lands acquired by Joaquim Policarpo Aranha, the Chapadão Farm stands out, registered in 1855 in the parish of Campinas as belonging to Thomaz Luiz Alves and Maria Joaquina de Abreu Cruz.¹² In 1875, it was the only property in the municipality producing coffee and sugarcane, equipped with a dwelling house, mills, slave quarters, and other improvements, and adjoining the lands of other large landowners.¹³ As he expanded his interests into diversified sectors such as urban services, the prominent coffee planter began residing in the city, contributing to the transformation of urban centers (Bianconi, 2002, p. 87). The appreciation of urban land and its improvements thus became a concrete strategy of real estate investment. This shift in activity strengthened the position of these shaping agents, whose actions influenced urban form through land decisions and strategic investments.

Figure 2 reconstructs a hypothetical scenario of the area's occupation in 1875, allowing the visualization of a morphological stage prior to the consolidation of the urban layout and of the relationship between Joaquim Policarpo Aranha's agency in rural and peri-urban spaces beyond the limits established by the Municipal Regulations. The changes represented in Figure 2 are predominantly land-related, with the exception of infrastructure interventions that effectively transformed the landscape.

11 The Mogiana Railroad Company, led by prominent landowners, stood out for its extensive railroad network and smaller branch lines (Matos, 1974).

12 "This area includes three properties or farms with the names of Chácara Bom Retiro and Chapadão. Some lands located in the parish of Campinas [...] Some lands located in the parish of this city that on one side extend from the suburbs of this city to the Cavalheiros stream, bordering the road to the town (vila) of Piracicaba, bordering the old Boa Vista Baixo site, whose owner is Thomaz Luiz Alves, on the edge of the Terra Preta Road, then bordering the rural property of Luiz Nogueira Ferraz, which is divided by gate posts, until it borders the pasture called Chácara, up to the suburbs of the city, bordering several residents who own urban buildings and close in the Santa Cruz neighborhood" (Registro, 1854-1857, n° 73, p. 35).

13 Deed Book, 1875, p. 72v.



The conversion of rural land into urban fabric occurred gradually, with the rural property (chácara) emerging as the typology that best represented this mediation, combining agricultural production and urban residence. In the surrounding areas, farms and estates dedicated to coffee cultivation predominated. Located at the boundary of the rural property, adjacent to the main farm, the Itapura Palace exemplifies how the Campinas landed elite—particularly the Baron of Itapura—positioned themselves on the edges of the urban center, maintaining influence over urban space without severing ties to the rural world (Figure 2).

Previous studies (Menegaldo 2019; 2024) have already proposed hypotheses regarding the boundaries of the Chapadão Farm, based on the correlation between documentary descriptions and cartographic surveys. In this article, these discussions are expanded with the support of HGIS.

This study aims to demonstrate the changes in land division, infrastructure implementation, and building construction that transformed the urban fabric of this region. It becomes evident that certain urban infrastructures were implemented in ways that favored the properties of Joaquim Policarpo Aranha, while simultaneously promoting urban expansion in part of the city.

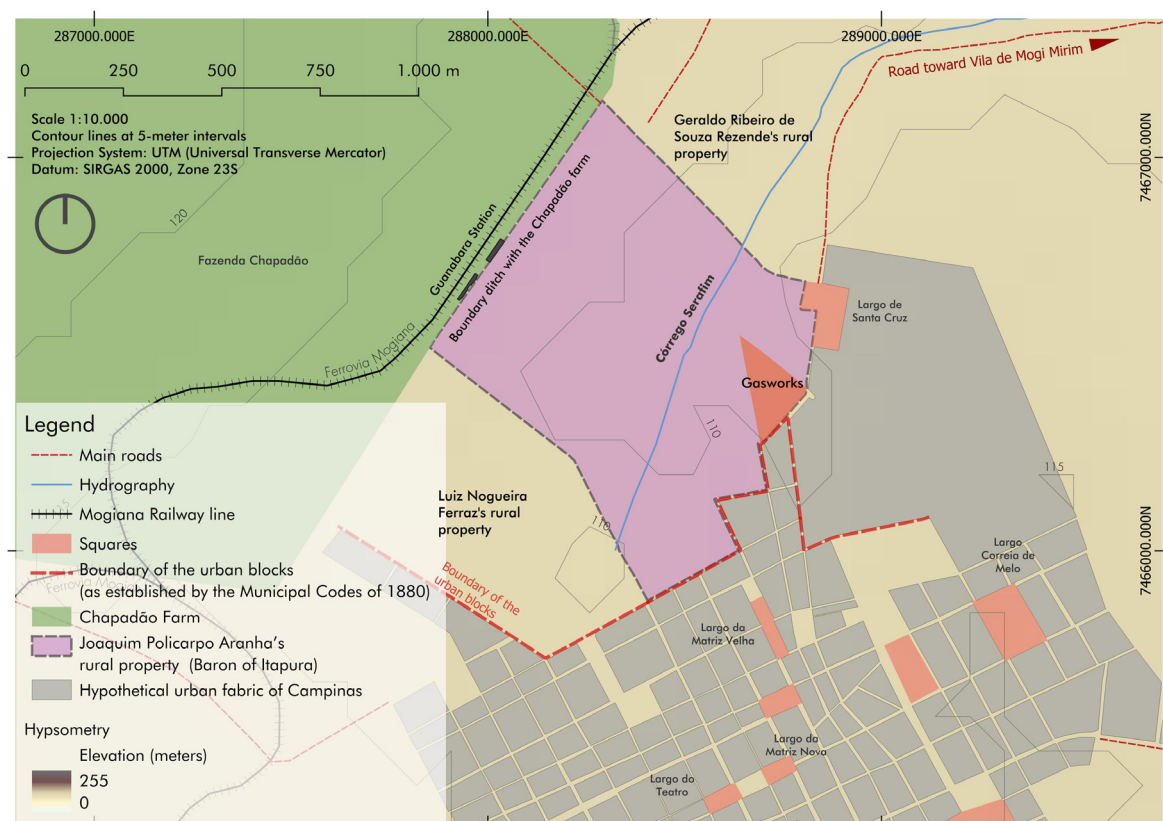


Figure 2: Hypothetical reconstruction of urban form in 1875. Prepared by the authors using QGIS.





Figure 3: Hypothetical reconstruction of urban form in 1883. Prepared by the authors using QGIS.

Figure 3 reconstructs the first urban elements implemented in the area as a result of the Baron of Itapura's initiatives, such as the Mogiana Railway Company line, the installation of the gasworks, and the opening of Dona Libânia Street, reinforcing the hypothesis that his actions were decisive in shaping the form this part of the city came to assume.

In 1886, again at the initiative of Joaquim Policarpo Aranha, the avenue that would facilitate circulation between the Guanabara and Botafogo neighborhoods was opened (Pareceres, 1886, p.1), later named Avenida Barão de Itapura (Goulart, 1983, p.117). This avenue marked the boundary between the Chapadão Farm and the Itapura rural property, structuring the local road network and promoting urban expansion toward the peri-urban zone. Joaquim Policarpo Aranha petitioned the City Council to extend Rosário and José Paulino Streets to the new avenue, thereby defining the urban layout of the area.

In 1887, the Agronomic Station—now the Agronomic Institute of Campinas—was established on part of the Itapura rural property, which had been sold by the Baron of Itapura. This initiative formed part of a broader strategy of urbanization and the progressive appreciation of his properties. The maps indicate that the



existing land structure shaped the implementation of infrastructure (streets and avenues) (Figure 4), which in turn guided the subsequent subdivision of plots.

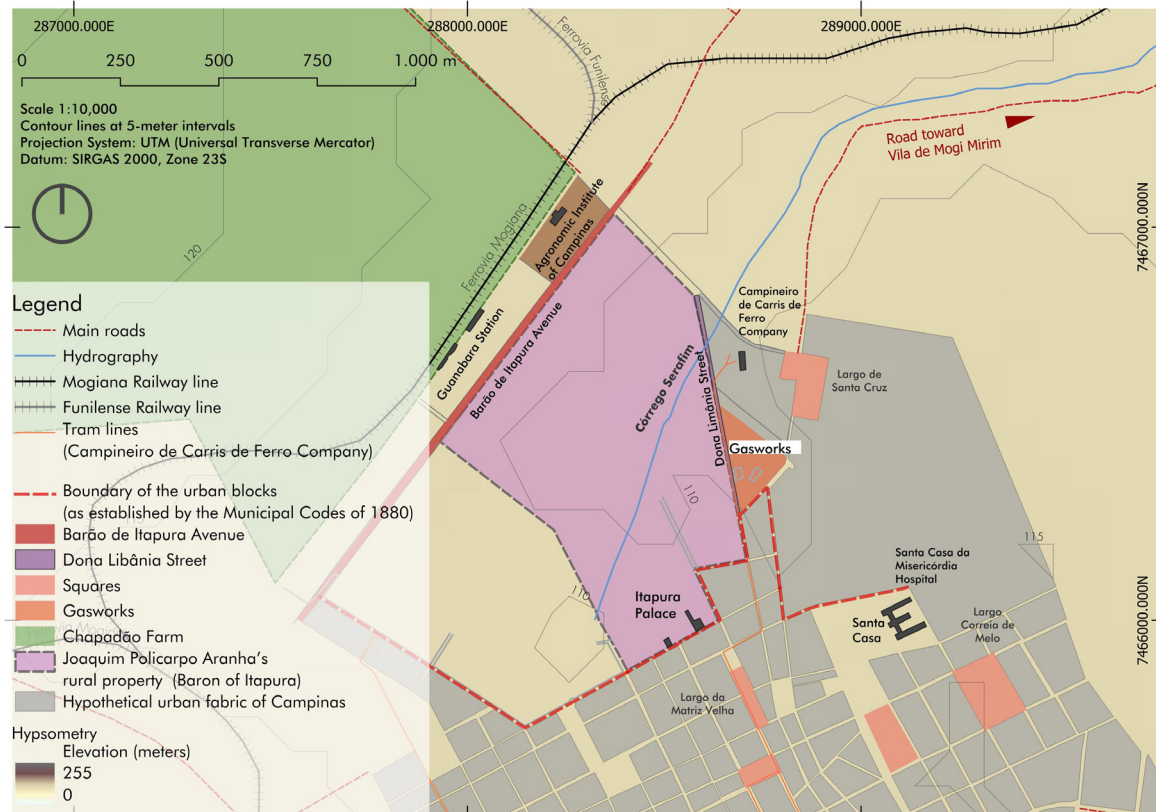


Figure 4: Hypothetical reconstruction of urban form in 1887. Prepared by the authors using QGIS.

Land transformations occurred in 1889 and 1892, when the Chapadão Farm was subdivided and transferred to the heirs.¹⁴ The articulation between rural and urban properties symbolically and functionally expressed a strategy of economic and political affirmation and transcended the mere accumulation of land. This area was bounded by Marechal Deodoro Street (formerly Emperor Street) and the Saneamento Canal—formerly the Serafim Stream—which was straightened between 1896 and 1897, along whose banks Orosimbo Maia Avenue¹⁵ was later opened. In this section, the straight alignment of the Saneamento Canal began to act as a boundary separating it from the original lands of the Itapura rural property (Figure 5).

14 In 1889, Joaquim Policarpo Aranha and his wife, the Baroness of Itapura, carried out an amicable division of assets, allocating part of the couple's estate to their five children. In this context, the Chapadão Farm was divided equally between the heirs José Francisco Aranha and Alberto Aranha and was valued at 250 *contos de réis*—each receiving 125 *contos*. The property comprised land, coffee plantations, improvements, work tools, furniture, and the dwelling house (Inventory, 1889, pp. 11–12v). The description contained in this inventory already indicated the future subdivision of the Itapura rural property, the portion where the Itapura Palace is located remaining with the heirs of the Baron and Baroness of Itapura. In 1892, the entire farm came to belong to Alberto Aranha and his wife, Dona Isolina Barbosa Aranha, who acquired the share corresponding to his brother.

15 The straightening of the Saneamento Canal was part of Saturnino de Brito's interventions in Campinas to combat yellow fever at the end of the 19th century.



Morphological continuity and the indirect agency of the Baron of Itapura in the 20th century.

Figure 5 presents a morphological stage defined by the city's urban expansion in 1900.¹⁶ The aforementioned actions reveal that the infrastructure and urban elements promoted by the Baron of Itapura continued to guide urban expansion, underscoring his lasting legacy in the urban form of Campinas. The focus lies on the conversion of the lands of the Chapadão Farm into urban fabric, allowing the observation of the delimitation of the rural property at a later stage, by then partially transferred to the Baron's heirs and inserted into a context of new infrastructure in the surrounding area.



Figure 5: Hypothetical reconstruction of urban form in 1900. Prepared by the authors using QGIS.

The analysis draws on descriptions found in the amicable division of assets conducted during the lifetime of Joaquim Policarpo Aranha and Libânia de Souza Aranha (1889), as well as in their post-mortem inventory (1902).¹⁷ Barão de

¹⁶ The 1900 map of Campinas was one of the georeferenced cartographic bases used in the analysis. Part of the methodology was developed in undergraduate research projects (2020–2021) conducted by the research group.

¹⁷ In the amicable division of assets conducted during the Baron's lifetime, the rural property is described as "the entire field duly fenced, including the existing improvements within its perimeter," valued at 50 *contos de réis*, with particular emphasis on the Itapura Palace, "[...] together with the corresponding land extending to the stream, including all furniture and utensils [...]" (Inventory, 1889, p. 04v). Although there is no precise indication of the property's dimensions, comparison with the 1902 inventory allows part of its area to be delimited, described as "the rural property below Itapura Avenue, with all existing improvements, bordering Dona Libânia Street [...]" (Ibid., p. 16v).



Itapura Avenue formed the dividing line between the family's tract of land and the land occupied by the Mogiana Railway Company and the Agronomic Institute of Campinas. The inventory¹⁸ of Libânia de Souza Aranha (deceased in 1921) recorded that the property extended from the continuation of Rosário Street (now Francisco Glicério Street) to Barão de Itapura Avenue, on land previously donated to the Campinas City Council (Inventory, 1921, p. 41v).¹⁹

The urbanization and subsequent subdivision of the rural property—already provided with infrastructure—resulted in the formation of the Vila Itapura neighborhood and part of the Jardim Guanabara area, a process initiated after the Baron's death in 1902. Although the subdivision of Vila Itapura was approved in 1924, its urban layout was directly shaped by the actions of Joaquim Policarpo Aranha in the 19th century.

In 1923, the heirs sold part of the original property to Rossi, Borghi & Cia, who prepared a street layout plan characterized by regular blocks and orderly subdivision (Figure 7).²⁰ Furthermore, Orosimbo Maia Avenue, constructed between 1917 and 1918 following the straightening of the Sanitation Canal, became a structuring axis, connecting the developing neighborhoods to the consolidated city.

18 The property included a dwelling house in poor condition, with an eight-window façade, a door, and a wattle-and-daub structure, as well as an orchard valued at five *contos de réis*. The rural property also comprised the main house, built of brick masonry, with a square and compartmentalized plan, which in the past functioned as a carriage house, valued at four *contos de réis* (Inventory, 1921, pp. 42–42v). At the rear, there were two additional houses: one of brick and a smaller one of wattle-and-daub construction, previously used as an infirmary, valued at one *conto de réis* (Ibid., p. 42v). In 1921, the Itapura rural property had approximately 13 *alqueires*, including areas of grassland, pasture, orchard, and cultivation, bordering already consolidated streets such as Dona Libânia, Santa Cruz, José Paulino, and Barão de Itapura, as well as land belonging to the Souza Aranha family and the estate of the Baron of Ibatinga (Ibid., p.43).

19 The creation of Barão de Itapura Avenue, resulting from a donation subject to specific clauses to the City Council in 1886, already provided for the opening of a road 100 *palmas* (approximately 22 meters) in width, with fencing to protect the herds of the rural property, demonstrating planning geared toward future urbanization.

20 The land subdivision proposal filed by the firm Rossi, Borghi & Cia filed in 1924 established innovative urban planning guidelines, such as mandatory setbacks, exclusively residential use, and concrete boundary markers, and was implemented in practice prior to its formal approval by Resolution No. 807/1925 (CAMPINAS... Process, No. 1223/1924, unbound sheet).



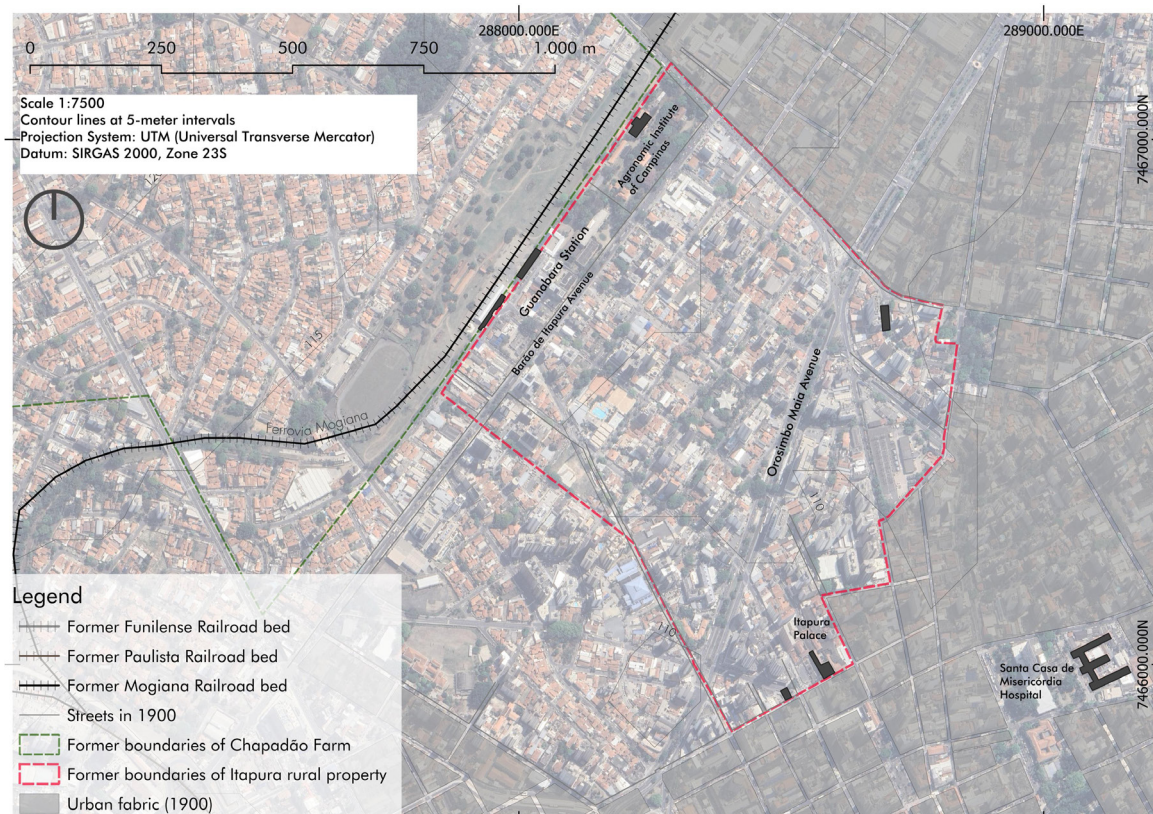


Figure 6: Hypothetical reconstruction of the urban form in 1900, superimposed on the current urban fabric (2025). Prepared by the authors using QGIS.

The current urban form still preserves traces of the former land structures (Figure 6), indicating that the consolidation of these neighborhoods derives from measures taken in the 19th century, at the outset of the subdivision of the Itapura rural property. The actions driven by the private interests of Joaquim Policarpo Aranha directly influenced the shaping of part of Campinas's urban fabric. Although buildings were replaced as a result of densification and verticalization, the permanence of more stable elements of the urban form—such as the layout and shape of the blocks—remains evident.



FINAL CONSIDERATIONS

The analyses developed in this article demonstrate how certain actions undertaken by Joaquim Policarpo Aranha, in the context of 19th-century Campinas, São Paulo, contributed to the shaping of part of the city's urban fabric. The application of HGIS made it possible to reveal spatial continuities and transformations that, although diluted in the current urban fabric, preserve traces of an urbanization process anchored in the agency of the landed elite.

The actions of this agent in shaping urban space must be understood as part of a system of values and social hierarchies that projected onto the city the agency of the landed elite, whose activities extended from agricultural production oriented toward external markets to investments in local and regional territorial and urban infrastructure. From the second half of the 19th century onward, the landowners of Campinas structured their local power around a “clan network” that united families through matrimonial alliances and political and social affinities, enabling them to exercise authority over territorial management (Lapa, 1995, p. 111). Sustained by ennoblement and patrimonial accumulation, this arrangement produced patterns—visible in practices of sociability, in the architecture of mansions, and in the strategies for shaping and ordering space—that affirm the social legitimacy of these elites (Bacellar, 1997).

In this context, the Baron of Itapura emerges as a prominent figure in this transition: an agent who articulated the values of the agrarian aristocracy with the principles of urban modernity, transforming landownership into an instrument of symbolic ordering and legitimation. His actions exemplify how individual agents, situated within the networks of the landed elite embody, in their practices, the interdependence between the social and the spatial, between urban form and the culture of power (Revel, 1998; Lepetit, 2016).

The aim was to demonstrate that urban form is also shaped by private interests and by urban expansion guidelines dictated by an elite that controlled the means—land ownership and capital—for the (trans)formation of rural spaces into urbanized areas, thereby revealing the political and economic dimensions that guided the growth of Campinas during the period in question (Figure 7).



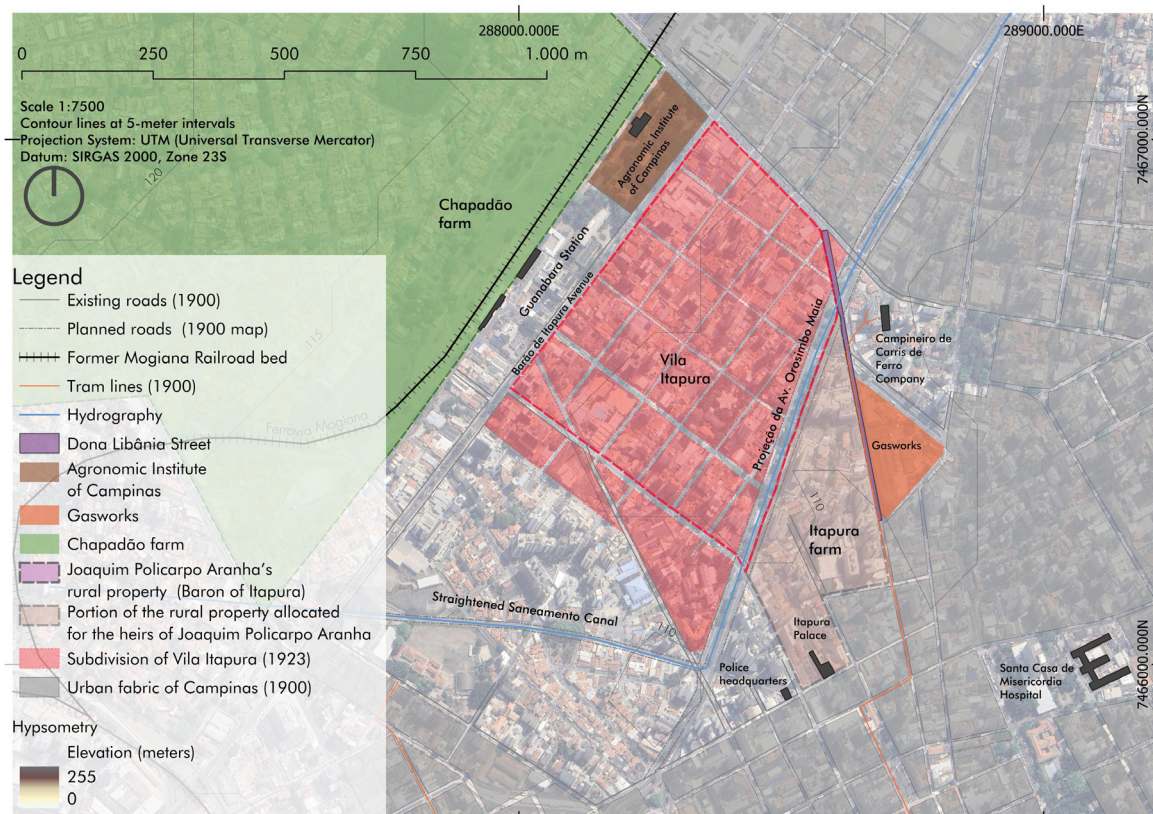


Figure 7: Diachronic overlay of morphological transformations on the current urban fabric (2025). Prepared by the authors using QGIS.

By producing cartographic outputs using HGIS tools, it is possible to visualize, diachronically, the land transformations that followed the subdivision of the Chapadão Farm and the Itapura rural property, a process that proved crucial in shaping the urban fabric of part of Campinas. Although the introduction of new activities and infrastructure on the lands of Chapadão Farm did not generate material forms, a morphological period characterized by land transformation can nonetheless be identified. Apparently invisible within the urban form, this transformation becomes evident through cartographic reconstruction.

Cartographic and morphological analyses show that the landed elite, by controlling land and the instruments of urban planning, shaped an urban form that expressed its social and cultural hegemony. The actions of Joaquim Policarpo Aranha exemplify this process, revealing how individual agents defined centralities and occupation patterns that transformed urban space into a manifestation of landed authority. The use of HGIS made it possible to identify these continuities, demonstrating that the urbanization of the case study—and, more broadly, the 19th-century Brazilian urbanism—took shape as a spatial translation of social hierarchies, in which urban form became a vehicle for the symbolic legitimation of elite authority.



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The interpretive value of the concept of the modeling agent is reinforced, as it is applied not as a descriptive category but as an analytical tool for understanding the relationships among land ownership, infrastructure, and urban structure and form. This study seeks to broaden the scope of urban morphology in Brazil by opening avenues for comparative investigations in other Brazilian cities shaped by similar land dynamics. We argue that GIS tools are effective in revealing the visual dimension of primary sources and in overlaying layers of historicity, thereby contributing to advances in urban history research.

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