

# YESTERDAY AND THE TODAY OF THE GEOGRAPHIC NAMES OF THE IMPERIAL CITY OF PETRÓPOLIS/RJ

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## Abstract

Historical Cartography along with Historical Toponymy makes it possible to understand the dynamics of geographic space through the occupation process, that is, historical maps contribute to the toponymic study, where geographic names present themselves as testimonies in the process of occupation of a given territory and space dynamics geographical. In this sense, the objective of the present work is to analyze the spatial dynamics regarding the origin of the geographical names of the genesis area of the imperial city of Petrópolis/RJ. For this purpose, it relied on the historical cartographic documents Koeler Map – 1846 and Otto Reimarus Map – 1854, and the cartographic base from 1999. Thus, the geographic names contained in the three referred cartographic documents were extracted and subsequently classified. Results show the prevalence of geographic names of Germanic and Portuguese origin, however, the names of Germanic origin went out of use over time. These geographical names of Germanic origin are closely related to the settlers who established themselves there in the mid-nineteenth century. However, the town was later occupied by, individuals of Portuguese origin, which is also associated with the creation of different entrances to the city and explains the modification of these names.

**Keywords:** Historical Cartography. Historical Toponymy. Koeler Map. Otto Reimarus Map.

## Resumo / Resumen

### ONTEM E O HOJE DOS NOMES GEOGRÁFICOS DA IMPERIAL CIDADE DE PETRÓPOLIS/RJ

A Cartografia Histórica junto a Toponímia Histórica possibilita entender a dinâmica do espaço geográfico através do processo de ocupação, ou seja, os mapas históricos contribuem no estudo toponímico, onde os nomes geográficos se apresentam como testemunhos do processo de ocupação de determinado território e dinâmica do espaço geográfico. Nesse sentido, o objetivo do presente trabalho é analisar a dinâmica espacial quanto à origem dos nomes geográficos da área gênese da imperial cidade de Petrópolis/RJ. Para tanto, contou com os documentos históricos cartográficos Planta Koeler – 1846 e Planta Otto Reimarus – 1854, e a base cartográfica de 1999. Para tanto, foram realizadas as extrações dos nomes geográficos contidos nos três referidos documentos cartográficos e sua posterior classificação. Resultados mostram a prevalência de nomes geográficos de origem germânica e portuguesa, entretanto, os nomes de origem germânica foram deixados em desuso com o passar do tempo. Isto se deve ao fato dos nomes geográficos de origem germânica estarem muito relacionados aos colonos que ali se instalaram em meados do século XIX. Porém, posteriormente, predominou-se indivíduos de origem portuguesa, o que também é associado as diferentes entradas da cidade que sugeriram ao longo do tempo e se tornaram vetores de modificações desses nomes.

**Palavras-chave:** Cartografia Histórica. Toponímia histórica. Planta Koeler. Planta Otto Reimarus.

### AYER Y EL HOY DE LOS NOMBRES GEOGRÁFICOS DE LA CIUDAD IMPERIAL DE PETRÓPOLIS/RJ

La Cartografía Histórica junto con la Toponímia Histórica permite comprender la dinámica del espacio geográfico a través del proceso de ocupación, es decir, los mapas históricos contribuyen al estudio toponímico, donde los nombres geográficos se presentan como testimonios en el proceso de ocupación de un territorio determinado y su dinámica, del espacio geográfico. En este sentido, el objetivo de este trabajo es analizar la dinámica espacial en torno al origen de los nombres geográficos del área de génesis de la ciudad imperial de Petrópolis/RJ. Para ello se basó en los documentos cartográficos históricos Planta Koeler – 1846 y Planta Otto Reimarus – 1854, y la base cartográfica de 1999. En este sentido, se realizó la extracción de nombres geográficos contenidos en los tres documentos cartográficos referidos y su posterior clasificación. Los resultados muestran la prevalencia de nombres geográficos de origen germánico y portugués, pero, sin embargo, los nombres de origen germánico cayeron en desuso con el tiempo. Esto se debe a que los nombres geográficos de origen germánico están estrechamente relacionados con los pobladores que allí se asentaron a mediados del siglo XIX, sin embargo, posteriormente predominaron individuos de origen portugués, lo que también se asocia a las diferentes entradas a la ciudad que sugirieron con el tiempo y se convirtieron en vectores de modificaciones de estos nombres.

**Palabras-clave:** Cartografía Histórica. Toponímia Histórica. Planta Koeler. Planta Otto Reimarus.

## INTRODUCTION

Historical Cartography and Toponymy make it possible to study the geographical space from the past through the occupational dynamics, through the representation on historical maps of changes in the landscape, occupation of the territory, changes in administrative boundaries and the establishment of urban centers. As well as through human action in the act of naming, establishing a cultural relationship with the place and being directly related to the process of occupation of a given area.

In this sense, maps can be understood as important historical documents, as they preserve information concerning the spatial configurations of their time, such as political, economic, and social aspects, besides the techniques used for their elaboration (SANTOS et al., 2009). It is important to highlight that they also allow comparative studies on changes of landscape dynamics (FERNANDES, et al., 2020; LAETA et al, 2023).

Maps contribute to toponymical studies as well, since the act of naming reflects human activity and is marked by cultural particularities of the people involved in the process, making geographical names true testimonies of the occupational process of a given place. According to Dick (1990), naming is a way of marking the present with the intent of leaving knowledge for future generations, thus, “the toponomy is the instrument of this temporal projection”.

Based on Santos (1994) and Tuan (1983), the concept of place can be related to the bonds of closeness and affection that people have with a certain part of space linked to their daily lives. In place, relationships of feelings are expressed, and individuals build their values, so place is directly related to cultural experiences and consequently to the identity and daily life of an individual and also of a society. Onomastics is the area of knowledge that studies names, which includes the sub-area of knowledge that studies proper names, called Topomastics. The latter is subdivided into two other branches: anthrotoponymy, which studies the names of people, and toponymy, which studies the names of places.

Etymologically, the word toponymy is a product of the combination of two Greek radicals: topos + onoma, topos meaning place and onoma, name. Toponyms or geographical names can be considered synonymous terms, since they both name a place, a geographical feature, whether it is natural or man-made (MENEZES & SANTOS, 2008).

According to Dick (1990), the field of research on geographical names is an area of human knowledge of great linguistic and cultural complexity, and therefore involves the overlapping of data and information from other sciences, being related to geography, cartography, history, anthropology, among others.

Geographical names are made up of two terms, one relating to the geographical entity called the generic term and the other relating to what Dick (1990) defines as the toponym itself, i.e., the term that will give a sense of particularity to the spatial notion, identifying and singularizing it among other similar ones and which will be called specific term.

In this regard, Menezes and Santos (2008) affirm that Cartography imposingly considers these two component terms of the geographical name, where the generic part indicates what type of geographic features the name refers to, while the specific part particularizes, identifies and precisely qualifies said accident, expressing at the same time a specific attribute of the place.

However, it is important to highlight that when identifying and extracting geographic names from historical maps, it is common not to find the specific term. Hypothetically, if the geographic name “povoado de São Pedro de Alcântara” was represented by “povoado”, only the generic term would be in use and not the specific, which would be “São Pedro de Alcântara”. From a linguistics point of view, that would be an obstacle for the taxonomic classification proposed by Dick (1990). Nevertheless, in order to understand the process of occupation of a certain territory, the geographic name “povoado” is essential, as it reflects the establishment of an urban center.

In face of the need for a classification that considered spatial geography, a new proposal by Menezes (2020) was drawn up: "Extraction of Geographical Names from Old or Historical Maps", aiming to complement the classification proposed by Dick (1990) and thus better understand the process of organization of the geographical space and occupation of a given territory.

Based on the above, the goal of this article is to spatially analyze the origin of geographical

names, the prevalence of the geographical group to which they belong and subsequently their geographical identifier, contributing to the understanding the occupational process of the genesis area of the imperial city of Petrópolis, based on historical cartographic documents and the most contemporary cartographic base. In this sense, the purpose is to understand, based on dynamic toponymic analysis, whether the European colonization roots have crystallized or been lost over time in the different spatialities that cover the area in question.

## BRIEF CONTEXTUALISATION OF THE FOUNDATION OF THE IMPERIAL CITY OF PETRÓPOLIS TO UNDERSTAND ITS GEOGRAPHICAL NAMES

In the first half of the 19th century, the Brazilian empire took national measures to integrate and occupy its immense territory: roads and colonization. The Golden Route was fundamental to the creation of the city of Petrópolis. Since colonial times, roads were established to connect the port cities to the interior of the colony, more precisely to Comarca da Vila Rica, where prominent settlements were located, such as Vila Rica (Ouro Preto) and Mariana (COSTA, 2015; SANTOS et al., 2011). There, gold was discovered in abundance from the late 17th century onwards.

The colonization of the mountain region of Rio de Janeiro, and consequently the city of Petrópolis, was a consequence of the need to create a new road to transport the gold from Minas Gerais to the port of Rio de Janeiro and on to Lisbon. Thus, at the beginning of the 18th century, the Portuguese crown requested the opening of a new gold route, which was started by Captain Major Garcia Pais and completed by Sergeant Major Bernardo Soares de Proença.

This road is also known as "Caminho Real das Minas Gerais", "Caminho da Serra da Estrela", "Caminho do Proença", or more popularly as "Caminho do Ouro" or "Caminho dos Mineiros", having been traced through the valley of the Piabanha River, reaching the Porto da Estrela on the Inhomirim River, and completed in 1725 (Figure 1) (RABAÇO, 1985).

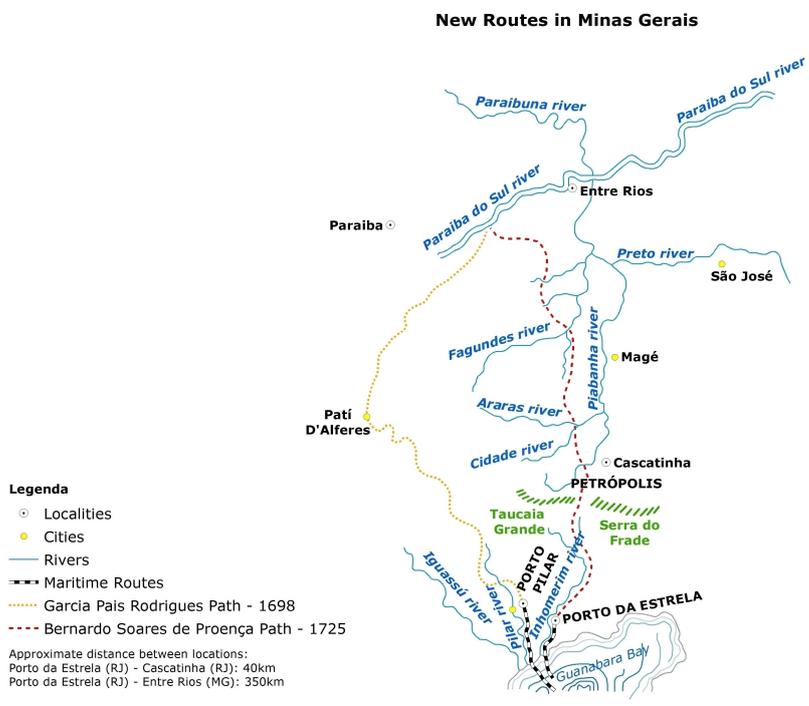


Figure 1 – Sketch of the new roads connecting the port of Rio de Janeiro from Guanabara Bay to Minas Gerais. Source: Own elaboration, adapted from Lamego (1963) & Rabaço (1985) (LAETA, 2021).

Some peculiarities stand out in the creation of the imperial city of Petrópolis. For example, despite Brazil having been a Portuguese colony, and consequently having emerged under the Brazilian imperial political system, the city of Petrópolis had as its creator and author of the first cartographic document of the city, the Petrópolis Map – 1846, also known as Koeler Map – 1846, the Major of Engineers Julio Frederico Koeler, of German descent, responsible for its urban layout and occupation process.

Figure 2 shows the location of the city of Petrópolis, in its current form, the genesis area delimited in the Koeler Map – 1846, the three hydrographic basins that guide the city's planning process – the Palatino, Quitandinha and Piabanha River basins, and the main access roads to the municipality that existed until the 1970s (LAETA et al., 2023).

This historical cartographic document was drawn up following the Imperial Decree No. 155, also known as the “Village-Summer Palace” plan (BRASIL, 1843), on March 16, 1843, and is the document that started the city's settlement process.

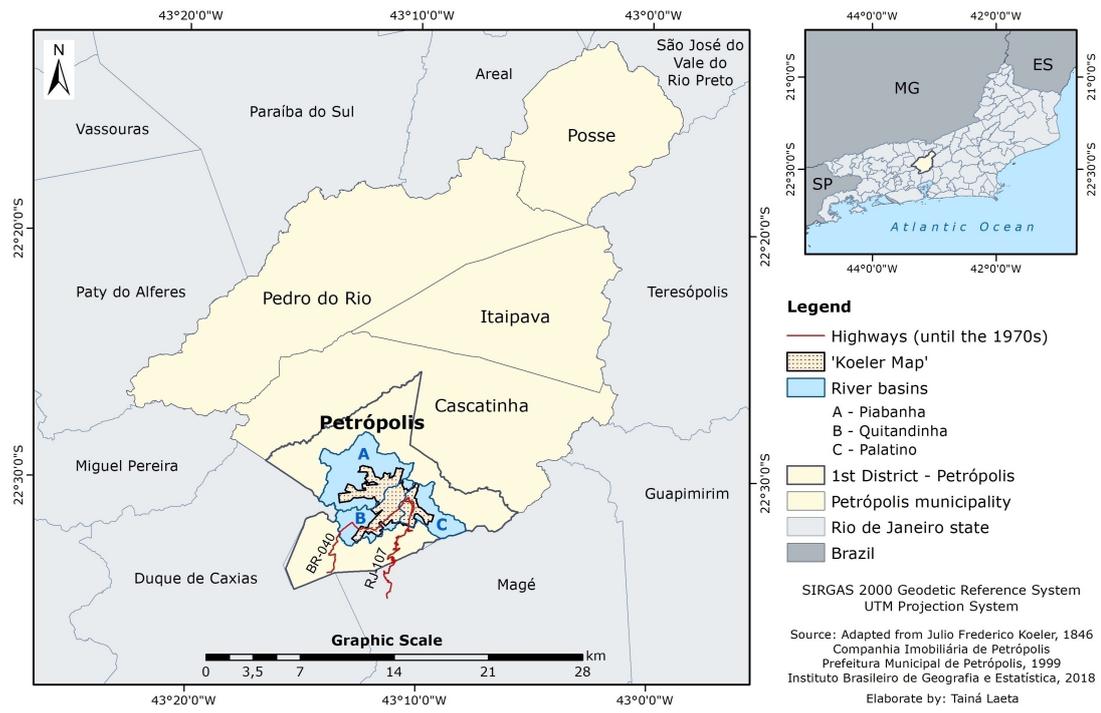


Figure 2 – Study area showing the municipalities of Petrópolis, highlighting the 1st district, the river basins, and the boundaries from the Koeler Map – 1846. Source: Own elaboration.

Another particularity concerns the process of occupying this location following the initial idea of setting up an agricultural colony. The first attempt to colonize Petrópolis was made by the German, naturalized Russian George Heinrich von Langsdorff, Consul General of Prussia in the Empire of Brazil, in the province of Rio de Janeiro, when in 1816 he acquired the Mandioca farm. The second attempt, and the one that was actually successful, was made by the German Julio Frederico Koeler in 1840 (LACOMBE, 1939).

Emperor Dom Pedro I had already shown interest in buying farm to build his imperial palace, as shown by the proposal to buy the Corrêa’s farm, which was turned down by Father Antonio Tomaz de Aquino Correa Goulão’s sister, Dona Arcângela Joaquina da Silva Goulão, who claimed she had made a family promise never to sell the property. Then, the Emperor bought in 1830 the Córrego Seco farm, that belonged to the Major Sargent José Viera Affonso and his wife Dona Ritta Maria de Jesus (FRÓES, 2002; FRÓES, 2006). Located in Alto da Serra, it was set out to be the grounds for an imperial palace and colonial farms.

The project, however, had to be postponed because on April 7, 1831, Emperor Dom Pedro I abdicated his throne and returned to Portugal to lead the Constitutionalist Revolution in Porto against his

brother, the absolutist Dom Miguel. The heir to the Brazilian throne, Dom Pedro II, soon resumed the intention of building an imperial palace with a more modest project than his father's, through the intermediation of the engineer and Steward of the Imperial Household Paulo Barbosa and the support of the President of the Province of Rio de Janeiro (Viscount of Sepetiba - Aureliano de Souza Coutinho), who entrusted the task to Julio Frederico Koeler (LACOMBE, 1939; NEVES & ZANATTA, 2016). Thus, in 1833, when Paulo Barbosa took over the Imperial Stewardship, the construction of the summer palace for the sovereign in Alto da Serra was already among his concerns.

The creation and establishment of an agricultural colony in Petrópolis's was implemented with the use of German settlers. In 1837, the French ship *La Justine*, bound for Sydney, Australia, and carrying 238 German immigrants, arrived in Rio de Janeiro due to a revolt on board by its crew against the captain, who had objected to the poor conditions of the voyage. At the same moment, Julio Frederico Koeler was working on the "Estrada Normal", that would connect the Porto da Estrela to Paraíba do Sul, passing through the Córrego Seco farm. The immigrants on the ship *La Justine* in Rio de Janeiro soon spiked the interest of Koeler, who had been trying for some time to get the best out of using European labor to replace slave labor (LACOMBE, 1939; RYBEROLLES, 1859).

Provincial Law No. 56 of May 1, 1840, under the interim presidency of Caldas Vianna, was fundamental to the implementation of the colonization plan. The government was authorized to promote the establishment of agricultural colonies and acquire land in order to subdivide it for settlers. In addition, a commission was set up to create colonies, under the responsibility of Julio Frederico Koeler (LACOMBE, 1939). According to Arbos (1946), German settlers were employed in the construction of roads and other works in the province.

## METHODOLOGY

To carry out the research, two historical maps were initially obtained. The first of these, the Petrópolis Map – 1846, also known as the Koeler Map – 1846, is a watercolor with dimensions of 129.2 centimeters high by 128.9 centimeters wide and is kept at the Companhia Imobiliária de Petrópolis (CIP). It succeeded the former Superintendência da Imperial Fazenda de Petrópolis, of which Koeler was the first director (LAETA & FERNANDES, 2021).

The second cartographic document of Petrópolis researched was the plan drawn up by Otto Reimarus, entitled *Planta da Imperial Colonia de Petropolis (reduzida para guia dos visitantes)* – 1854, referred to here as Otto Reimarus Map – 1854. It was printed in Rio de Janeiro by Lithographia Imperial de Resenburg, under the responsibility of the lithographer Louis Wiegeland. It is watercolored and its dimensions are 29.4 centimeters high x 41.2 centimeters, being kept at the Biblioteca Nacional (BN) (LAETA & FERNANDES, 2021).

The growing use of geotechnologies in historical maps, through georeferencing, makes it possible to make the historical maps and the cartographic base compatible, or rather, to overlap them, providing a better analysis of the changes that occurred in the geographical space at different times. In this sense, the historical maps were georeferenced, i.e., coordinates in the historical cartographic documents were identified and related to a spatial reference system.

During the process of georeferencing the two historical maps, 30 points were plotted. In this work, where the images are historical maps, the resolution was often not high enough due to loss of quality in the digitization process. For this reason, the first-order affine polynomial transformation (Affine) was used in the georeferencing process, which is characterized by correcting the distortions of scale, displacement and rotation that exist between the image (historical map) and the database.

The interpolation method used was the nearest neighbor, which is characterized by being local and deterministic, where the interpolation is defined by choosing a neighboring sample for each grid point. Thus, each grid node is assigned the value of the nearest point (CRÓSTA, 1992; MENESES & ALMEIDA, 2012).

After the georeferencing process, it was possible to know the scales of the historic maps. The Koeler Map – 1846 was found to have a scale of 1:5,000 and was classified as cadastral due to the nature of its representation. The Otto Reimarus Map – 1854, on the other hand, has a scale of 1:34,000, i.e., it was produced on a smaller scale. It is worth remembering that its dimensions are smaller,

corresponding to approximately 23% of the width and 32% of the height of the Koeler Map – 1846 (Figure 3).

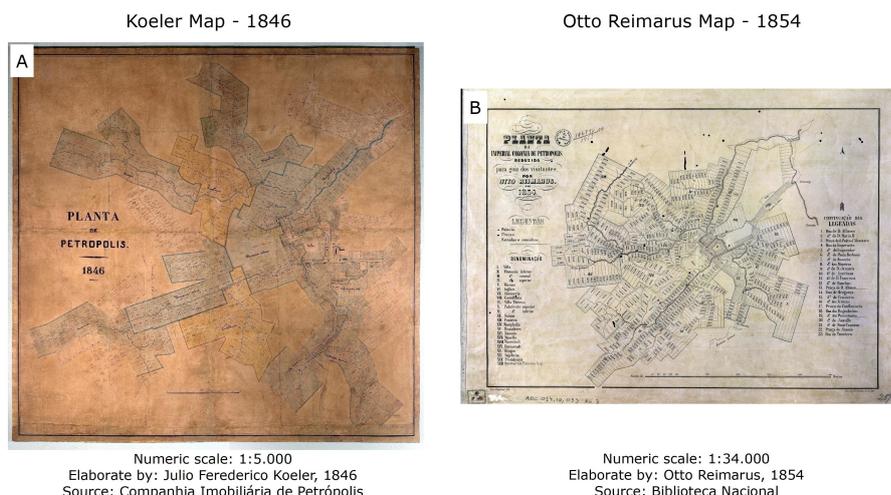


Figure 3 – A – Planta de Petrópolis – 1846, better known as the Koeler Map – 1846, drawn up by Julio Frederico Koeler; B – Planta da Imperial Colonia de Petrópolis (reduzida para guia dos visitantes) – 1854, better known as the Otto Reimarus Map – 1854, drawn up by Otto Reimarus. Source: Companhia Imobiliária de Petrópolis and Biblioteca Nacional.

After georeferencing, features and geographical names were extracted from both historical maps. Next, the geographical names were classified according to their origin in order to understand the process of naming and occupation of the imperial city of Petrópolis in the aforementioned historical maps, as well as the geographical names contained in the cartographic base of the Petrópolis City Hall (Prefeitura Municipal de Petrópolis) on a scale of 1:10,000 from 1999.

GEOGRAPHIC GROUP (GROUP_GEO)	GEOGRAPHIC IDENTIFIER (ID_GEO)
<b>Administrative</b>	Captaincy, country, province, state, municipality, district
<b>Descriptive</b>	All features not included in the others and that describe a place: place, landmark, grove, forest, bush, corner, field, marsh
<b>Ethnic</b>	Indigenous groups, tribes, village, nation, family, descriptive
<b>Extractivism</b>	Mine, gold mine, iron mine, saltpeter, salt pan, crystal
<b>Hydrography</b>	River, stream, channel, waterfall, lagoon, lake, lagoon, stream, shoal, beach, port, island, restinga, cape, point, bay, bar, hole, bathymetry, cove, Igarapé, parcel, fishing spot, stream, reef, bag, boo
<b>Localities</b>	Site, registry, parish, fort, fortress, city, village, tower, church, barracks, place, town, farm, village, curato, headquarters
<b>Orography</b>	Hill, hill, mountain range, gorge, volcano, mount, peak, desert
<b>Road Network</b>	Roads, paths, trails, railways, highways
<b>Others</b>	

Table 1 – Geographical classification of geographical names proposed by Menezes (2020). Source: Menezes (2020).

After classifying concerning the origin of the names, the classification was based on the “Extração de Nomes Geográficos em Mapas Antigos ou Históricos” (MENEZES; 2020). This document proposes that geographical names be classified based on their generic term, where the geographical group is considered first (GRUP\_GEO), i.e., the large grouping of features with the same geographical meaning. Then the classification is made within the geographical group, i.e., considering the geographical feature or geographical identifier (ID\_GEO) (MENEZES, 2020) (Table 1).

Finally, after the geographical classification of the toponyms extracted from both historical maps, a spatial analysis was made concerning the distribution of the origin of geographic names associated with the geographical group and identifier within the limits of the genesis area of Petrópolis. The synthesis of the materials and methods can be seen in figure 4.

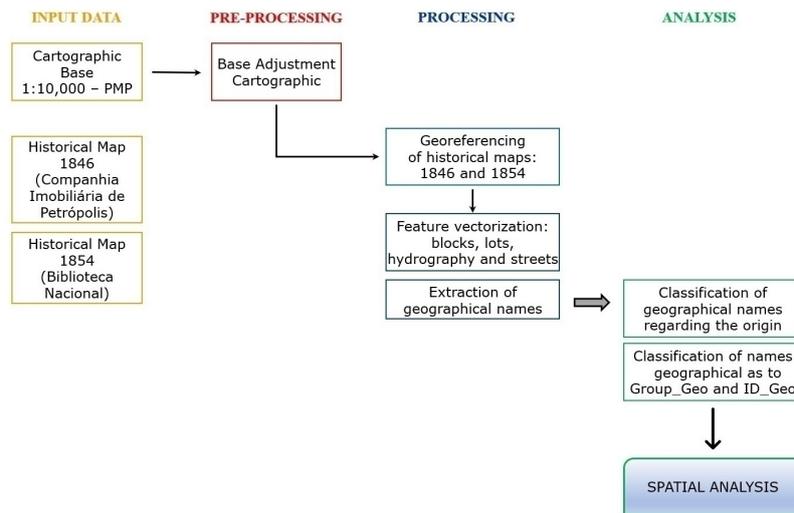


Figure 4 – Flowchart of the research stages. Source: Own elaboration.

## CLASSIFICATION OF PETRÓPOLIS'S GEOGRAPHICAL NAMES

Similarly to the Koeler Map – 1846, the Otto Reimarus Map – 1854 has inscriptions of the blocks and imperial towns, numbers of inscriptions of the imperial lots, land reserved for the construction of the imperial palace, the church of São Pedro de Alcântara, the cemetery, the colonial barracks, the main rivers and tributaries, streets, roads, squares, and some localities. However, the names of imperial villages and blocks, streets and squares appear for the first time in the form of captions.

As for the cartographic base of the Petrópolis City Hall – 1999, it showed a greater number of classes of geographical names, as there was a greater diversity of features. However, for the purposes of comparison, we decided to consider the same classes of features found on the historical maps: descriptive: place; hydrography: river, canal, stream; brook; locality: block, neighborhood, palace, museum, church, chapel, cathedral, square, barracks, cemetery; orography: mountain, hill; road network: street, path, road, avenue, highway.

### THE GEOGRAPHICAL NAMES OF THE IMPERIAL CITY OF PETRÓPOLIS AND THEIR CLASSIFICATION REGARDING THEIR ORIGIN

ACCORDING to the Relatório do presidente da Província do Rio de Janeiro, o senador Aureliano de Sousa e Oliveira Coutinho, na abertura da Assembléa Legislativa Provincial no 1º de março de 1846, acompanhado do orçamento da receita e despesa para o anno financeiro de 1846 a 1847, Petrópolis had a total population of 2.105 people, nationals and foreigners combined, of which 1.921 had German

origins (BRASIL, 1846).

The total population was distributed within the limits of the Koeler Map – 1846, which added up to a total area of 15.62 km<sup>2</sup>, approximately 2% of the current total area of the municipality. The calculated value was obtained after the georeferencing and vectorizing of the imperial blocks (LAETA & FERNANDES, 2015; FERNANDES et al., 2017).

For the following document, Planta Otto Reimarus – 1854, using the same procedures as in the previous historical plan, an area value of 42.34 km<sup>2</sup> was obtained (LAETA, 2021). However, it was not possible to obtain the population contingent value, though it is speculated that with the increase in the number of imperial blocks, i.e., 13 in the Koeler Map – 1846 and later 23 in the Otto Reimarus Map – 1854, the population may have accompanied such territorial expansion. In 2022, the municipality of Petrópolis has a total population of 304,758 inhabitants (IBGE, 2023).

The total population of Petrópolis at the present time considering the boundaries of the imperial quarters is not known for sure, but as highlighted above and following the records of the decennial censuses, it is considered that the population of the boundaries of the quarters has followed the upward trend for the entire municipality.

Table 2 shows the total number of geographical names extracted and classified by origin. The Koeler Map – 1846, showed a total of 70 classified geographical names, most of which were of Germanic and Portuguese origin. The geographical names of Germanic origin are related to the predominant labor force used in the colonization and settlement of the city of Petrópolis. The high number of Portuguese geographical names is due to the fact that most of the Brazilian territory was colonized by the Portuguese. Another fact that corroborates the higher number of geographical names in the Koeler Map – 1846 is the scale at which it was drawn up, i.e., 1:5,000.

The Otto Reimarus Map – 1854, presented a total of 55 geographical names. Like the Koeler Map – 1846, most of the geographical names were of Germanic and Portuguese origin. Both maps did not register hybrid geographical names, i.e., names with more than one origin. However, it is worth noting that the lower incidence of geographical names is due to the fact that this historical cartographic document was drawn up on a smaller scale (1:34,000), i.e., with more generalization and less detail.

Regarding the geographical names from the 1999 cartographic base, it is important to note that a total of 237 names were extracted. However, the classification by origin resulted in a total of 265 geographical names. The reason for this is that the geographic names from the 1999 map base included 26 hybrid geographic names, i.e., geographic names with more than one origin. Remember that this was not the case with the historical maps of 1846 and 1854. In addition, the scale of the 1999 cartographic base is 1:10,000 and as the scale value suits cadastral mapping, like the historical cartographic document Koeler Map – 1846, it implies less generalization and more detail in the mapped features.

Origin	1846	1854	1999	
Germanic	23	17	20	
Portuguese	37	29	194	
	Angolan	-----	-----	2
	Danish	1	-----	-----
	French	2	3	10
	Hispanic	-----	1	10
	Indigenous	3	3	7
Others	English	-----	1	4
	Italian	2	-----	13
	Lebanese	-----	-----	1
	Prussian	1	-----	-----
	Russian	1	-----	-----
	Switzerland	-----	1	1
	NI	-----	-----	3
<b>TOTAL</b>	<b>70</b>	<b>55</b>	<b>265</b>	

Table 2 – Classification of geographical names according to their origin. Source: Own elaboration.

It is important to highlight that, despite the higher number of imperial blocks and lots, i.e., the expansion of the original boundaries from the Koeler Map – 1846 to the Otto Reimarus Map – 1854, the geographical names recorded on the historical map of 1854 are inferior to the 1846 map.

The reason for this is the cartographic scale of the 1854 historical document, where the 1:34,000 scale is smaller than the 1:5,000 cartographic scale of the 1846 historical plan. In addition, there are also the dimensions of these cartographic documents, where the 1854 plan is approximately 23% wider and 32% taller than the cartographic document Koeler Map – 1846 (LAETA, 2021).

## THE GEOGRAPHICAL NAMES OF THE IMPERIAL CITY OF PETRÓPOLIS AND THEIR CLASSIFICATION ACCORDING TO GEOGRAPHICAL GROUP AND GEOGRAPHICAL IDENTIFIER

Based on Menezes (2020), the geographic names of the historical maps and the cartographic base were classified according to their geographic group (GRUP\_GEO), which considers features of the same geographic significance, and then according to their geographic identifier (ID\_GEO), unique geographic feature or geographic identifier. Table 3 shows a total of five geographical groups. Of particular note are the descriptive and orographic groups, which do not have any features represented in the Koeler Map – 1846. The other geographical groups (hydrography, locality, and road network) were all represented in the three cartographic documents. The geographical group of hydrography was better represented in the Koeler Map – 1846. It is worth remembering that the scale of the map is 1:5,000, which allows for greater detail and representation of the features.

In addition, this historic plan guided the process of occupying Petrópolis and, together with Imperial Decree 155 and other subsequent normative documents, established where, how, when, and who should occupy Petrópolis. Since it was the first cartographic document, it shows that the occupation process, as well as being carried out in accordance with certain rules, was in its early stages, i.e., implying little population pressure on the banks of the hydrographic network.

In the Otto Reimarus Map – 1854, due to its size and scale, only the main rivers are represented. The 1999 map base showed a smaller number of hydrographic features represented, but with a difference in the geographical identifier, i.e., in the historical maps there was only the geographical identifier "river", while in the map base other identifiers were documented: channel, stream, and brook.

The geographical group "location" was represented by a very similar number of occurrences in the historical maps of 1846 and 1854. However, in the 1999 map base, this number more than doubled, with three geographical identifiers standing out: block, neighborhood, and church. The geographical identifiers block and neighborhood should be analyzed together, because initially from 1846 to 1854, that is, in an interval of eight years, there was an increase of 10 blocks, due to the expansion of the genesis area of Petrópolis outlined by Julio Frederico Koeler.

In 1999, there was a decrease in the number of blocks, totalizing eight, but at the same time the number of neighborhoods registered was 19 (Table 3). An analysis of the names of the extinct blocks and the neighborhoods created showed that some neighborhoods took over the names of some former imperial blocks. Regarding the geographical identifier "church", both the Koeler Map – 1846 and the Otto Reimarus Map – 1854 only record the Church of São Pedro de Alcântara. The year 1999, however, records 27 churches.

Finally, the geographical group "road network" saw an increase from 15 records in the Koeler Map – 1846 to 21 records in the Otto Reimarus Map – 1854. The main increase, though, was from 21 occurrences to 149 in 1999. It is also noteworthy the existence of two new geographical identifiers: avenue and highway, as there were no records in the historical maps of 1846 and 1854, i.e., public roads of greater length and greater number of lanes, and consequently with greater circulation of people, vehicles, and products. However, the main highlight in the "road network" geographic group is the "street" geographic identifier, which had values of 14 and 19 respectively for the years 1846 and 1854, and then 128 for the year 1999. This significant increase shows an intense process of occupation in the city of Petrópolis, with the need to open new roads to build new homes and promote the circulation of people.

Group_GEO	1846	1854	1999	ID_GEO	1846	1854	1999
Descriptive			1	Place		1	1
				River	24	4	11
Hydrography	24	4	15	Waterway			1
				Streamlet			2
				Stream			1
				Block	13	23	8
Localities	31	27	66	Neighborhood			19
				Palace	1		4
				Museum			1
				Church	1		27
				Chapel			2
				Carmel			1
				Cathedral			1
				Square	14	4	1
				Quarter	1		
				Cemetery	1		2
Orography		1	6	Mountain		1	
				Hill			6
Road Network	15	21	149	Street	14	19	128
				Path		1	
				Road	1	1	7
				Avenue			12
				Highway			2
<b>TOTAL</b>	<b>70</b>	<b>54</b>	<b>237</b>		<b>70</b>	<b>54</b>	<b>237</b>

Table 3 – Classification of geographical names according to geographical group and subsequently geographical identifiers in historical mapping maps. Source: Own elaboration.

There was a significant increase of the geographic names in cartographic base of the end of the 20th century when compared to the historical maps of the 19th century. The exception is the "hydrography" geographical group, which saw a reduction in the number of geographical names related to this feature.

Concerning these changes, it's also worth highlighting the shift in the municipality's urban environment, which has intensified and, as a result, natural elements are no longer as important in the daily life of cities as built elements, which are now part of the daily commute and orientation of citizens.

In other words, when moving around the city, it is more common to be guided by the streets that make up the urban fabric than to follow paths defined by rivers. This also intensifies the non-recognition of natural elements: citizens no longer know the names of the rivers that make up their everyday space, because they no longer use them to guide their movements or simply because they are no longer visible, such as when they are channeled underground.

## THE GEOGRAPHICAL NAMES OF THE IMPERIAL CITY OF PETRÓPOLIS: PAST AND PRESENT

Following the results obtained with the geographical classification of Petrópolis's geographical names for the years 1846, 1854, and 1999, a pertinent question arises: how were these geographical names distributed in the past and where are they today? First, however, it is important to highlight two points that directly contributed to the geographical names of this future imperial city: Julio Frederico Koeler, of German origin, and the origin of the Brazilian imperial court itself. These contributions will be discussed in more detail below.

In the past, in the Koeler Map – 1846 and the Otto Reimarus Map – 1854, there was a concentration of names of Portuguese origin in the Villa Imperial because it was the home of the

emperor and members of the court (Figure 5). It is worth noting that, in order to occupy the 210 lots allocated for leasing, out of the total of 216 lots at Villa Imperial, the provincial report stated that: "these lots must naturally be occupied by traders, artists, and people from the court, who want to spend the summer in the temperate climate of the mountains" (BRASIL, 1846).

Thus, the imperial villa was mainly home to people linked to the imperial court of Portuguese origin and for this reason, street and square within the boundaries of the imperial villa were given names in honor of members of the Brazilian imperial family. Some examples of streets are Rua Dona Januária in honor of Emperor Dom Pedro II's sister; Rua do Imperador in honor of Brazilian ruler Dom Pedro II; Rua da Imperatriz in honor of Empress Teresa Cristina; Rua do Bourbon in reference to the Royal House of Bourbon.

As for the squares, with the exception of three that were located within the boundaries of the Imperial Villa (São Pedro de Alcântara Square; Dom Affonso Square; Emperor's Square), all the other 11 had names of Germanic origin (Woerstadt Square; Maoinz Square; Munster Square; Nassau Square; Coblenz Square; Wisbaden Square; Trier Square; S. Goar Square; Ingelheim Square; Bingen Square; Kreuznach Square).

Curiously, there are no records of names of Germanic origin at the Imperial Villa. As can be seen in the highlights in figures 5 and 6, in Villa Imperial, among the geographical names recorded in the Koeler Map – 1846 and in the geographical names of the Otto Reimarus Map – 1854, there are only records of names of Portuguese origin.

Another stipulation present in the provincial report concerned the occupation of land in the imperial quarters furthest from the Villa Imperial, which should be designated for farming, i.e., occupied by German settlers. This is why the imperial quarters had names of Germanic origin, as did their squares. The names given to the imperial quarters in 1846: Palatinato Inferior; Westphalia; Nassau; Mosella; Rhenania Inferior; Rhenania Central; Castellania; Ingelheim; Bingen; Simmeria, referred to the places of origin of the settlers on Petrópolis.

Regarding the original peoples, their influence only appears in the denomination of the Piabanha River.

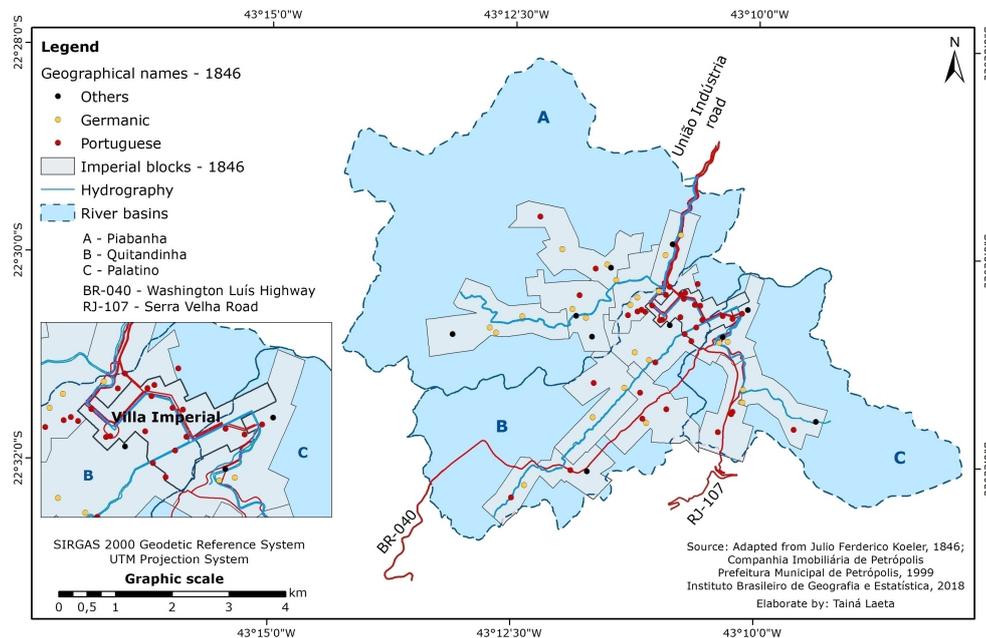


Figure 5 – Map of geographical names extracted within the limits of the Koeler Map – 1846. Source: Own elaboration.

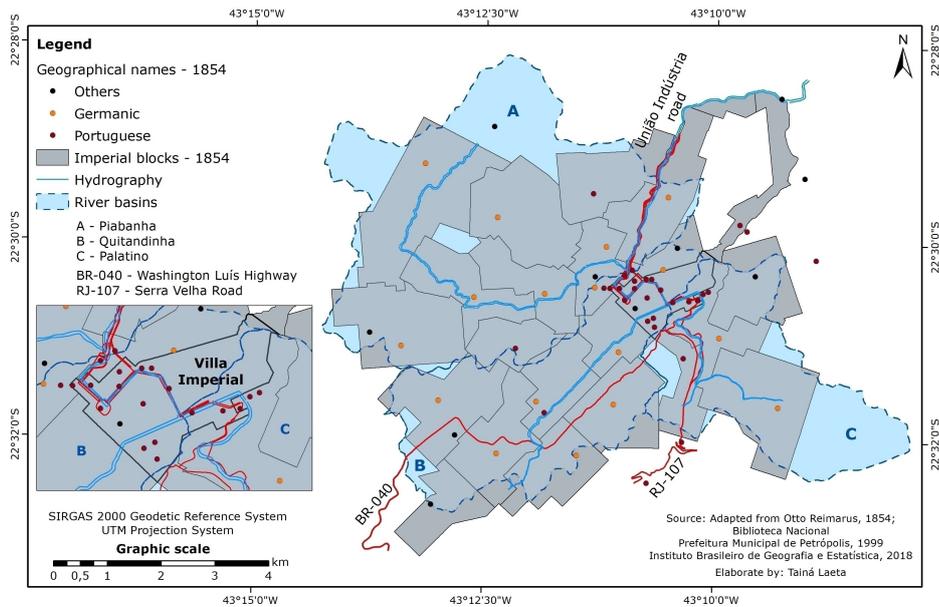


Figure 6 – Map of geographical names extracted within the boundaries of the Otto Reimarus Map – 1854. Source: Own elaboration.

In the present time, the geographical names of Petrópolis have a different spatialization from those of around two centuries ago.

The first highlight is the more homogeneous presence of names of Portuguese origin within the boundaries of the historical cartographic maps. As a result, there is no predominant concentration of Portuguese geographical names within the boundaries of the Villa Imperial. Secondly, there is a loss of geographical names of Germanic origin for the imperial quarters (Figure 7).

Some events may have contributed to the change mentioned above. The initial route to Petrópolis was via the Variante do Caminho Novo, also known as the “Caminho Real das Minas Gerais”, “Caminho da Serra da Estrela”, or more popularly as the “Caminho do Ouro”, whose construction was completed in 1725.

In 1840, the Estrada Normal da Serra da Estrela was inaugurated (part of the future RJ-107), which passed through Villa Theresa, Palatinato Inferior, bypassed the Villa Imperial, and continued on to Minas Gerais. In 1861, Emperor Dom Pedro II inaugurated the road called Estrada União Indústria (section of the future BR-040), linking Petrópolis (RJ) to Juiz de Fora (MG). Today this road is known as “Estrada Velha da Estrela”. This entrance to the city was first marked by the “Caminho do Ouro”, the Estrada Normal da Serra da Estrela (1840), and the Estrada de Ferro de Petrópolis (1854), all of which culminated at the headwaters of the Palatino River basin.

Later, in 1928, a stretch of the federal highway BR-040 was inaugurated, locally known as Rodovia Washington Luís. This stretch is considered to be Brazil's first paved highway, but it wasn't until 1980 that the BR-040, which connects Rio de Janeiro to Brasília, was actually fully inaugurated, replacing the Estrada União Indústria built in the previous century by Emperor Dom Pedro II. The construction of the new stretch of the BR-040, which had better conditions for use, almost automatically led to the increasing disuse of the “Estrada Velha da Estrela” (stretch of the RJ-107). Thus, a new entrance to the city was established via the headwaters of the Quitandinha River, to the detriment of the old entrance via the Palatino River basin.

But what does this imply for Petrópolis's geographical names?

Figure 7 shows that there is a much higher concentration of geographical names near the entrance to the city via the old Estrada União Indústria road, compared to the entrance used today via the BR-040 highway. This is because this new access road to the city made it possible to open up other smaller roads, also showing greater urban occupation. So much so that most of the geographical names registered in 1999 refer to the geographical group “road network” and its geographical identifier “street”.

In other words, the geographical names extracted from the 1999 cartographic base are probably of Portuguese origin and use the geographical identifier "street", showing that the city has undergone an intense process of expansion and occupation of its urban limits in the last century, as evidenced by the record in the outermost blocks of the historical maps studied.

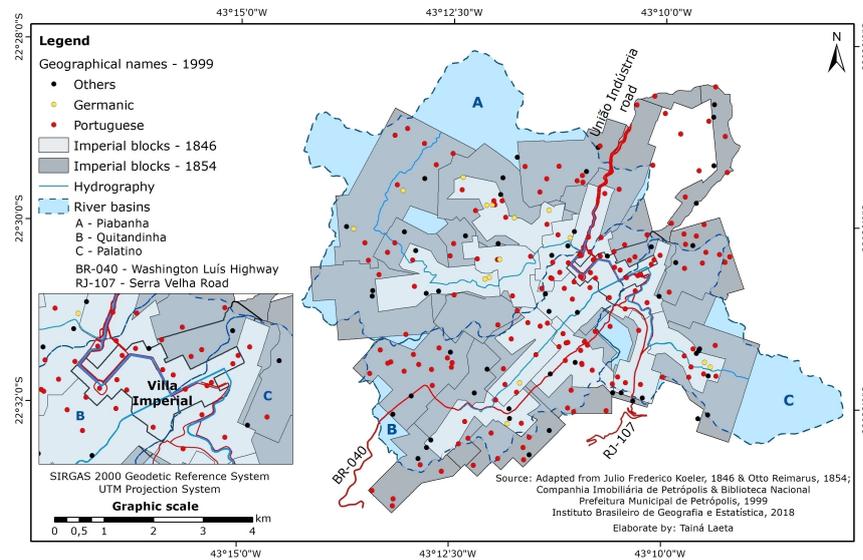


Figure 7 – Map of geographical names extracted from the 1999 cartographic base, considering the boundaries of the historical cartographic maps of 1846 and 1854. Source: Own elaboration.

To demonstrate the spatial dynamics of the names of Germanic and Portuguese origin in the historical maps and the cartographic base, graphs have been drawn up to help highlight these spatial dynamics based on the river basins (Figure 8).

But why consider the river basins?

The urban layout of Petrópolis, and thus, consequently, the imperial blocks demarcated in the Koeler Map – 1846 and later granted by provincial decree (1846) were guided by the three main watercourses: Palatino (formerly Córrego Seco), Quitandinha and Piabanha, and their tributaries. These three main watercourses name the three main hydrographic basins in which the entire genesis area of Petrópolis is contained.

The Palatine River basin shows a constant throughout the three time periods, i.e., there is a predominance of Portuguese names, which can be related to the first entrance to Petrópolis. In other words, the "Estrada Velha da Serra da Estrela", identified on the 1846 map as the "Estrada Nova do Porto da Estrela a Minas Geraes" passes through this basin. While the Portuguese names remain close in relative value, those of Germanic origin decrease over time, which may be associated with the initial changes made by Koeler to the main route in and out of the municipality, that lasted until the first half of the 20th century.

The same pattern is observed in the Quitandinha River basin. The names of Portuguese origin stand out to the detriment of the others, and this is due to the fact that within the limits of this basin lies the Villa Imperial block, i.e., the home of the Brazilian imperial family, and where there are more records of Portuguese names, especially in the "road network" geographical grouping. In the temporal sense, this behavior repeats itself, with Germanic names decreasing over time, especially in relation to the 1999 cartographic base, where the percentage drop is quite significant.

However, in the Piabanha River basin, there is a different configuration, with a greater number of geographical names of Germanic origin in the historical cartographic documents, with the exception of the 1999 document. In the latter, the exception is due to the non-arrival of other German settlers and, at the same time, the permanence of a larger population of Portuguese descendants.

However, when comparing the percentage of Germanic names in the three basins, the resistance of names of such origin is clear in the Piabanha River basin, where in the 1999 cartographic base these geographical names are more significant than in the other two basins. This characteristic of the crystallization of this type of toponym is associated with the fact that this basin has not been a major entry point for the municipality, even today. In other words, there is no circulation dynamic in this basin that would drive significant changes in the landscape, as well as in the toponymic structure.

Origin of Petropolitan geographic names	Koeler Map 1846		Otto Reimarus Map 1854		Cartographic Base 1999	
	Value percentage	Value absolute total	Value percentage	Value absolute total	Value percentage	Value absolute total
<b>Palatino River Basin</b> 		14		9		47
<b>Quitandinha River Basin</b> 		38		25		91
<b>Piabanha River Basin</b> 		18		13		87
<b>TOTAL</b>	<b>100%</b>	<b>70</b>	<b>100%</b>	<b>47</b>	<b>100%</b>	<b>225</b>

Figure 8 – Graphs with percentage values of the origin of geographical names in the historical maps of 1846 and 1854, and in the cartographic base of 1999, divided by the hydrographic basins of the three main watercourses in the genesis area of Petrópolis: the Palatino, Quitandinha and Piabanha basins. Source: Own elaboration.

The graphs show in overview that the geographical names of Germanic origin have gone into decline, while the geographical names of Portuguese origin have increased. The exception is the Quitandinha River basin, because the Otto Reimarus Map – 1854 shows an increase of 10 blocks, most of which have names of Germanic origin. In addition, the decrease in geographical names of Germanic origin in the Piabanha and Quitandinha River basins is due to the opening of new access roads to the city.

## CONCLUSION

The spatialization of Petrópolis's geographical names shows that geographical names of Germanic origin have been lost, disappearing over the years. Geographical names of Portuguese origin, on the other hand, have crystallized in the urban landscape of Petrópolis.

As discussed, a number of factors contributed to this configuration. The first was the discontinuous arrival of German settlers in Petrópolis, which led to the prevalence of geographical names of Portuguese origin, given that Brazil was a Portuguese colony and later became an empire.

The second factor is the opening up of new routes into the city, which has led to a decrease in these names over time, especially in the Palatino and Quitandinha basins associated with these entrances. This decline was less noticeable in the Piabanha River basin, where there are no records of access routes of major importance.

This situation could be reversed in view of the project of new road to Petrópolis, which plans to move the entrance of the BR-040 highway from the Quitandinha River basin to the Piabanha River basin. Thus, with the establishment of this new road structure, it is possible that Germanic names will increasingly be replaced by other toponymic origins.

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