


Mapping time: the acceleration of postal communications in 19th century Brazil*

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Mapping time: the acceleration of postal communications in 19th century Brazil

Abstract

This article focuses on presenting the stages of a cartographic work performed in historical research. At the beginning of the 19th century, Brazil's postal network was able to accelerate epistolary communications, modifying the social experience of time and space. Unipolar cartographic transformations of distances and two-dimensional regressions allowed the construction of a cartographic representation of the phenomenon, helping to understand a geographic dimension of the modern experience of time acceleration.

Keywords: Brazilian Postal System; time topology; anamorphosis; geohistory; acceleration of time.

Cartografar o tempo: a aceleração das comunicações postais no Brasil do século XIX

Resumo

Este artigo dedica-se a apresentar as etapas de um trabalho cartográfico realizado em uma pesquisa de história. A formação da rede postal no Brasil no início do século XIX foi capaz de acelerar as comunicações epistolares, modificando a experiência social do tempo e do espaço. Transformações cartográficas unipolares de distâncias e regressões bidimensionais permitiram construir uma representação cartográfica do fenômeno auxiliando na compreensão de uma dimensão geográfica da moderna experiência de aceleração do tempo.

Palavras-chave: Correios do Brasil; topologia do tempo; anamorfose; geo-história; aceleração do tempo.

La cartographie du temps : l'accélération des communications postales au Brésil au XIXe siècle

Résumé:

Cet article est dédié à la présentation des étapes du travail cartographique réalisé dans une recherche historique. La formation du réseau postal au Brésil au début du XIXe siècle a été capable d'accélérer les communications épistolaires, modifiant l'expérience sociale du temps et de l'espace. Les transformations cartographiques unipolaires des distances et les régressions bidimensionnelles ont permis la construction d'une représentation cartographique du phénomène, aidant à comprendre une dimension géographique de l'expérience moderne de l'accélération du temps.

Mots-clés : Poste brésilien ; topologie temporelle ; anamorphose ; géohistoire ; accélération du temps.

The questions

In 1797, the governor of Pará informed a Portuguese secretary of state that the inhabitants of Belém had to wait more than a year to receive replies to letters they had sent to Pernambuco. This was if there were no accidents along the way, which were very common at the time. If the recipients of these letters, sent from Belém, were based in the city of Rio de Janeiro, around 130 days would have passed before they could be read at their destination. To gauge the historical significance of this distance it is enough to point out that, during this period, sailing the seas and oceans to connect the city of Macau, in China, to Rio de Janeiro required around 148 days for sailors. In other words, according to the spacetime dynamics of the late 18th century, Pará and China were practically equidistant from Rio de Janeiro.

A few years later, after the construction of the postal network, the spacetime connection between Rio and Pará was shortened to 70 days. This compression of spacetime was linked to efforts to restructure the Portuguese monarchy in America. As a result of the imperial conflicts taking place on the European continent at the beginning of the 19th century, the Portuguese Court migrated to America, settled in the city of Rio de Janeiro and began a wide range of political, economic and territorial reforms (Dias, 1972). Therefore, the city of Rio de Janeiro

suddenly became the new epicenter of the Portuguese monarchy, changing the way in which the constituent parts of the empire were articulated (Jancsó; Pimenta, 2000).

Involving Portuguese in Europe and America, the reform of the Luso-American postal service was conceived in 1796, promulgated in 1798 and consolidated in 1800. With the aim of creating a new branch of tax collection for the Crown and ensuring regular communication between the metropolis and the colonies, the reform also served to help preserve Portuguese sovereignty over American territories (Guapindaia, 2019). From 1808 onwards, however, the postal network took on a new importance, as it became the basis for much of the communication structure of the monarchy based in America. The postal network expanded, postal flows accelerated and epistolary communications became more regular (Fortunato, 2023). In light of this diagnosis, how can we produce a distortion of the cartographic space capable of representing the transformation of the time taken to cross distances?

The data

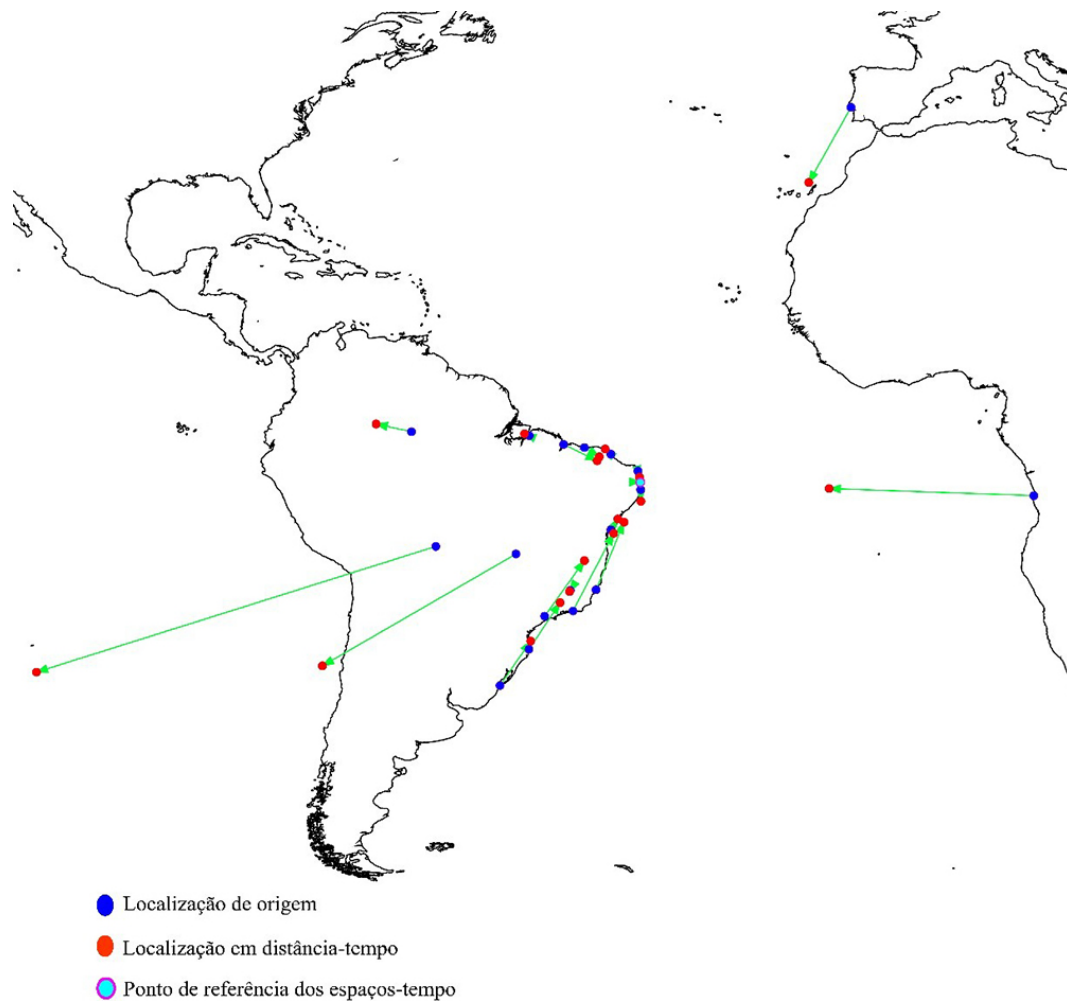
The empirical research was dedicated to collecting records of temporal distances in various postal service documents. Compiled together, the spacetime variations made it possible to identify two factors: (i) average time intervals for postal routes; (ii) the Crown's efforts to reduce their volatility. The geographical coordinates of the urban units interconnected by the postal network were taken from the Digital Atlas of Lusitanian America, a project developed in I3GEO by the Social History Laboratory of the University of Brasilia and fed by a wide network of researchers (Atlas, n.d.).

The maps

The cartographic work used two different pieces of software: IsoDistAngle and Darcy. The background figures used were plate carré projections that preserve the distance between spaces to the partial detriment of their areas, angles and shapes.

IsoDistAngle produced unipolar cartographic distance transformations (IsoDist) resulting from the adjustment between the geodesic coordinates collected in the Atlas [XY] and the vector [Z] made up of time-distance information. The position of each urban unit in the cartographic space was initially determined by a Euclidean spatial metric delimited by a scale. Using vector calculations, the software made it possible to replace the spatial metrics with temporal metrics, meaning that the relative distances between the urban units in the cartographic space now express a distance in time and no longer a distance in meters. In this way, we obtain a new set of coordinates of non-Euclidean metrics [UV] (Figure 1).

Figure 1 – Paraíba at the postal time topology (1807) (IsoDist).¹



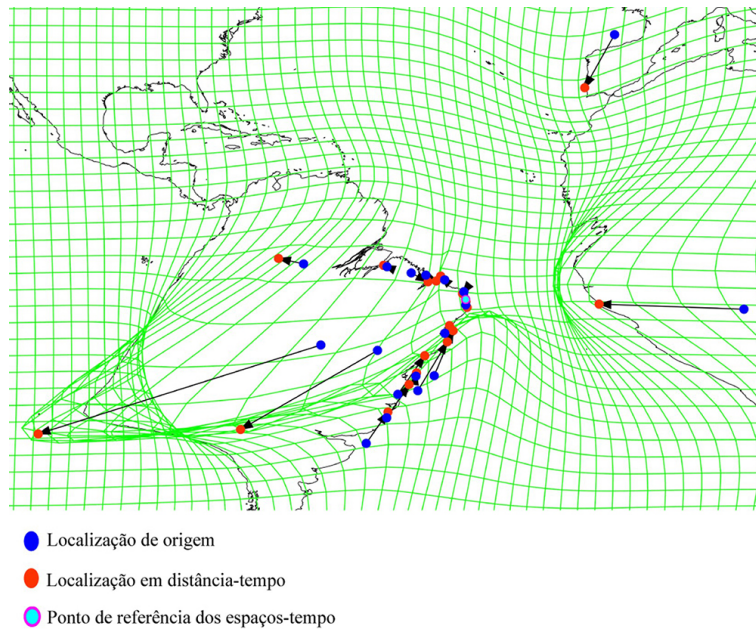
Source: Fortunato (2023, p. 223).

By selecting a location that is representative of the spacetime tendencies of one of the regions of Portuguese America, the city of Paraíba – as it was known at the time – demonstrates the incongruity between the distance relations measured in kilometers and those measured in time. The green filaments indicate the displacement of the position of the points. This preliminary elaboration brought cartographic representation closer to the temporal experience of space, but cartographic language was restricted to point implantation, that is, the insertion of points on a background figure.

These maps were then further worked on in Darcy, a software that interpolates the coordinates in spatial metrics [XY] with the coordinates in temporal metrics [UV], producing a two-dimensional regression. The result was an anamorphosis that transformed the IsoDist adjustments into a surface phenomenon. It was thus possible, in one case, to distort the background figure to represent the topographic behavior of the shortening of distances (Figure 2) and, in another, to circumscribe zones of dilation and contraction of space (Figure 3).

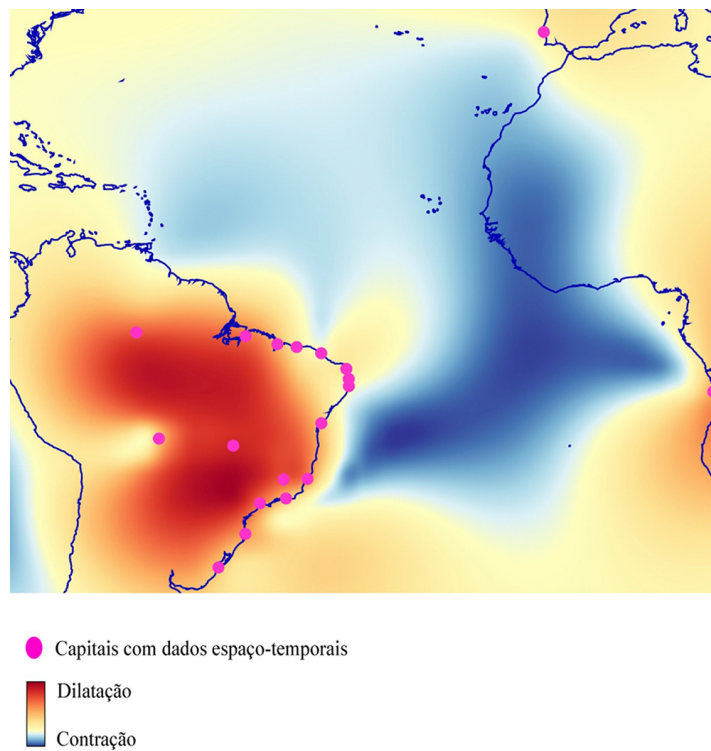
¹ This figure is not included in the dissertation as it was a stage in the cartographic work and not the final result. The empirical data, however, is the same as in the following figures.

Figure 2 – Paraíba at the postal time topology (1807) (Darcy).



Source: Fortunato (2023, p. 223).

Figure 3 – Paraíba at the postal time topology (1807) (Darcy 2).



Source: Fortunato (2023, p. 223).

With the conversion of the time-distances into metrics of cartographic space, Paraíba moved closer to the coastal population units, especially to the south, where navigation was easy. It also moved closer to Luanda, in Angola, and Lisbon, in Portugal, from where it was about 71 days away. In terms of communications with the interior, there was a significant gap, especially with the capitals of Goiás and Mato Grosso, from where it was 83 and 138 days away, respectively.

Two complementary trends were diagnosed: in spacetime terms, there was a contraction of the Atlantic and a dilation of America. In order to measure the spacetime transformations linked to the postal network, the same procedure was carried out with all the Portuguese captaincies in America at different times.

History, geography and cartography

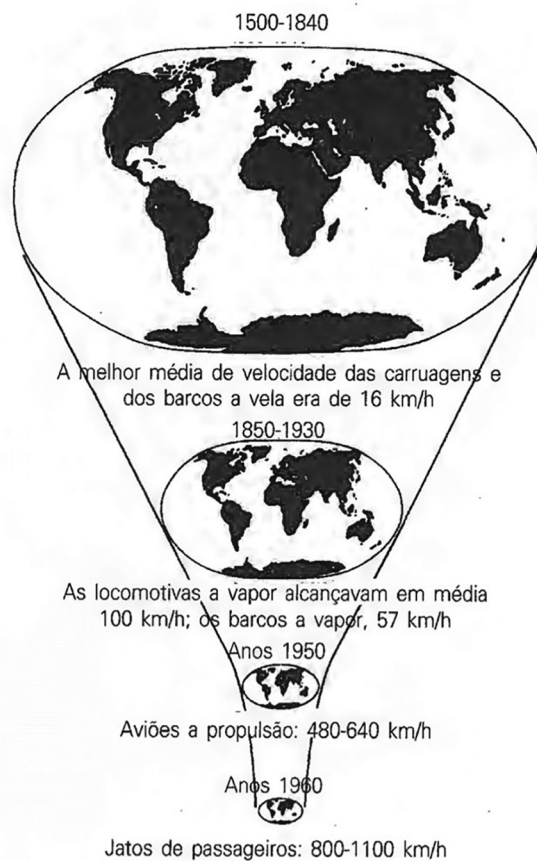
Many historians and geographers have highlighted the benefits of linking History, Geography and Cartography. With very diversified results, the methods and theories dedicated to establishing this interdisciplinary thread have been manifold (Dutenkefer, 2016). To represent the acceleration of traffic in Brazil and around the world, Moacyr Silva (Figure 4) and David Harvey (Figure 5) adopted the average speeds of different means of transportation as a reference value for measuring distances. They represented this acceleration by superimposing the same figure on different scales. In other words, as speed increases over time, distances decrease and the polygon representing the territory shrinks. Although analytically effective, in this procedure the “regression of distances” appears as a homogeneous phenomenon for the whole space, without distinguishing particular zones. This, in turn, leads to the misleading perception that the acceleration of movement is a generalized fact rather than a process that is unevenly distributed geographically.

Figure 4 – Distance regression.



Source: Silva (1949, p. 230).

Figure 5 – The shrinking map of the world through innovations in transport which “annihilate space through time”.²

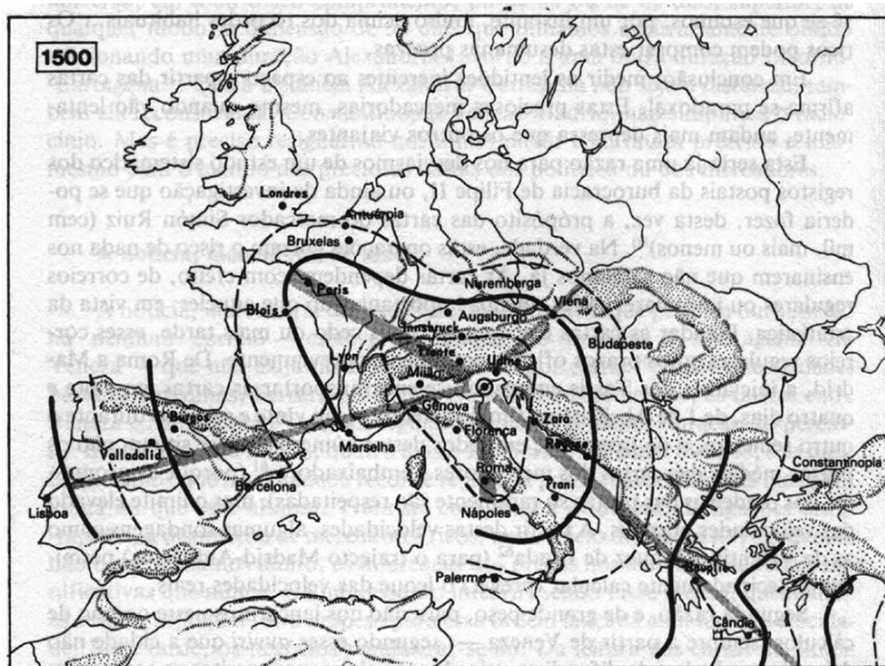


Source: Harvey (2017, p. 220).

Fernand Braudel (Figure 6) and Pierre Chaunu (Figure 7), in turn, adopted another cartographic procedure. By drawing lines and arcs on a background figure with the location of urban units, they marked the average travel times between a point of origin and various places of destination. In this way, they were able to represent temporally equidistant zones, as well as the asymmetries of travel speeds according to routes. Chaunu also performed an additional procedure, similar to Figure 1: he shifted the positions of the urban units according to a time-distance metric. Although their cartographic choices make it possible to observe the heterogeneity of time distances, they preserve the Euclidean spatial metrics of the background figures so that, graphically, time becomes just information projected on top of space and not one of its foundations.

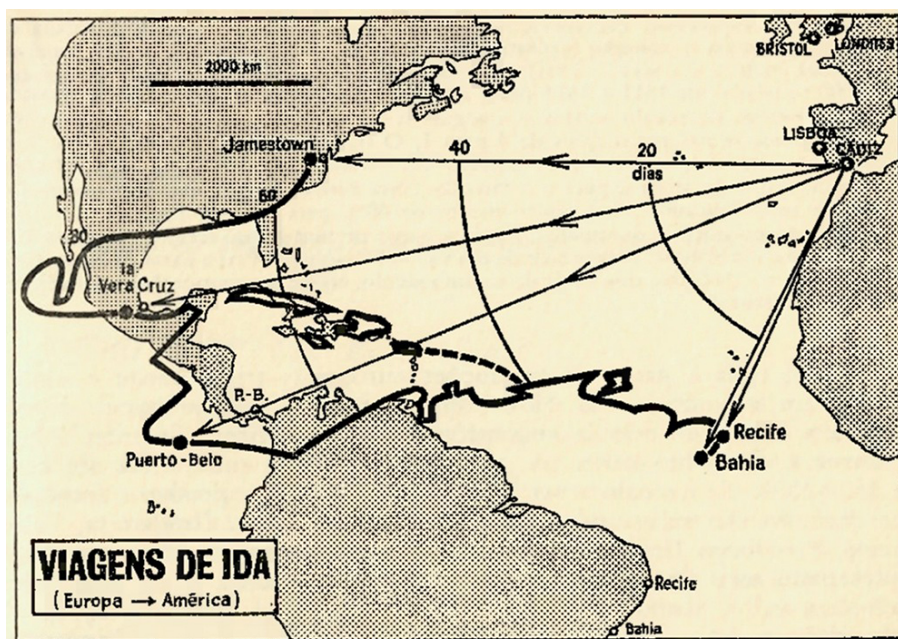
² In a partially different perspective from Harvey, we don't consider that this phenomenon suggests an “annihilation of space through time”, but rather a social reconfiguration of distances.

Figure 6 – News on the way to Venice.



Source: Braudel (1983, p. 414).

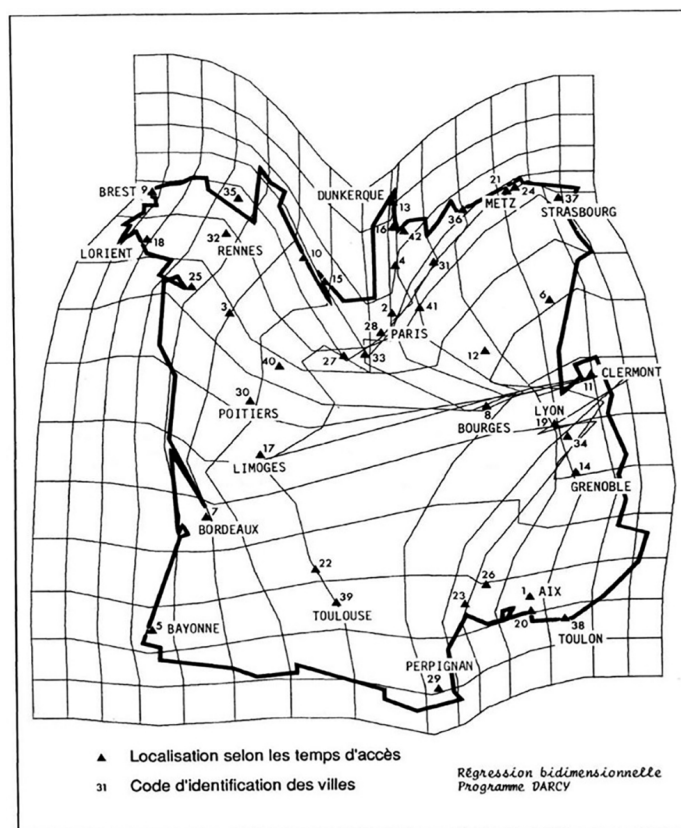
Figure 7 – The Atlantic in the 17th century, marking the times they spent on their journeys (detail).



Source: Chaunu (1969, p. 91).

The research into the postal services in Brazil at the beginning of the 19th century is part of a third cartographic alternative, developed mainly by Colette Cauvin (Figure 8). In addition to representing the diversity of time distances according to routes, this method allows for a cartographic fusion between space and time. In this way, time can itself become a metric of space within cartographic language.

Figure 8 – Functional postal space at the end of the 18th century.



Source: Cauvin, Lepetit e Reymond (1987, p. 109).

Applying this procedure to investigate the formation of postal space in Brazil at the beginning of the 19th century offers, in a way, a cartographic expression of what João Paulo Pimenta defined as a “spacetime”, that is, a social construction, notion, conception, representation, concept or concrete action in relation to space that is based on time and not just associated with it (Pimenta, 2021).

Final remarks

In this research, the interdisciplinary approach between History, Geography and Cartography has served to understand the formation of the postal network in Brazil as a topology of time, as a network structured on the temporalization of dimensions of space (Fortunato, 2024). In doing so, the history of communications was able to serve as a starting point for a history of the social experience of time and space in Brazil. Marked by spacetime compressions, this history is also part of the process of the rise of a new dominant time which, supported by social structures of space, connects Brazil to phenomena on a global scale. After all, the acceleration of time and the shortening of space are two sides of the same history.

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