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ORIGINAL ARTICLE

Circulation in Seventeenth-Century Lisbon (Portugal): Traffic Signs and Traffic Rules

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Abstract By the 17th century, Lisbon was a large and complex city—the capital of a large empire in which thousands of people and goods originating from different places around the world circulated. Yet the city was still organized according to its medieval footprint, one consequence of which was numerous documented traffic problems. In 1686, King Pedro II decreed that places in Lisbon where the problems were most recurrent should be marked with signs establishing circulation rules. Consequently, 24 such signs were put up in different parts of the city, three of which still survive today, even after the destruction of the 1755 earthquake. Based on archaeological, historical, cartographic, and geographic information, this article aims to discuss how these signs are a reflection of medieval Lisbon's circulatory patterns and how the narrow streets were not able to adequately support the circulation of large vehicles introduced in the 17th century. The combination of this information not only allows the recreation of Lisbon's circulation patterns, but also parts of the city's social and cultural landscape as well.

Resumen Ya para el siglo XVII, Lisboa era una ciudad grande y compleja, la capital de un gran imperio en el que circulaban miles de personas y mercancías provenientes de diferentes lugares del mundo. Sin embargo, la ciudad todavía estaba organizada de acuerdo con su huella medieval, lo que resultó en numerosos problemas de tráfico documentados. En el año 1686, el rey Pedro II decretó que los lugares de Lisboa donde los problemas fueran más recurrentes debían señalizarse con carteles que establecieran normas de circulación. En consecuencia, se colocaron 24 letreros de este tipo en diferentes partes de la ciudad, tres de los cuales aún sobreviven hoy, incluso después de la destrucción del terremoto de 1755. Basado en información arqueológica, histórica, cartográfica y geográfica, este artículo tiene como objetivo abordar cómo estos signos son un reflejo de los patrones circulatorios de la Lisboa medieval y cómo las calles estrechas no pudieron soportar adecuadamente la circulación de los grandes vehículos introducidos en el siglo XVII. La combinación de esta información no solo permite recrear los patrones de circulación de Lisboa, sino también partes del paisaje social y cultural de la ciudad.

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Résumé Au 17ème siècle, Lisbonne était une ville vaste et complexe, la capitale d'un grand empire au sein duquel circulaient des milliers de personnes et de biens originaires de lieux différents autour du monde. Cependant, la ville était toujours organisée conformément à son empreinte médiévale, dont une conséquence était de nombreux problèmes documentés de circulation. En 1686, le Roi Pedro II décréta que les lieux à Lisbonne où les problèmes étaient le plus récurrents seraient désignés par des panneaux établissant des règles de circulation. En conséquence, 24 de ces panneaux furent placés dans différentes parties de la ville, dont trois sont encore en place de nos jours, et ce même après la destruction du séisme de 1755. Sur la base d'informations archéologiques, historiques, cartographiques et géographiques, cet article a vocation à évoquer en quoi ces panneaux sont un reflet des modes de circulation de la Lisbonne médiévale et comment les rues étroites n'étaient pas en mesure de permettre adéquatement une circulation des véhicules imposants introduits au 17ème siècle. L'association de ces informations permet non seulement de recréer les modes de circulation de Lisbonne mais aussi certaines parties du paysage social et culturel de la ville.

Keywords urban circulation · Lisbon · traffic rules · signs

Introduction

In the 17th century, Lisbon was the capital of a maritime empire connecting several parts of the globe and played host to a large number of people of diverse origins. The city was bursting with life, filled with people and goods, one outcome of which was the increasingly dense traffic circulation. While the Tagus riverfront was characterized by squares and markets where hundreds of ships arrived every day and large palaces housed the high nobility and rich merchants, inside the city walls Lisbon was still a medieval urban center. This means that, among many other characteristics, the city was a product of relatively ad hoc growth over several centuries—filled with clusters of houses (*casas*), narrow and crooked streets (*ruas*), sharp corners (*esquinas*), small passageways (*passagens*), and hundreds of alleys (*becos*), many of them blind. All of these pathways assumed different trajectories and rarely did one street run straight onto another in a single direction (Pereira 1896:4–5; Castilho 1962:18; Castelo-Branco 1990:20,25,39). In addition, the gates (*portas*) to the 14th-century wall that surrounded the city were also very narrow, becoming somewhat dangerous and causing bottlenecks in the ever-growing traffic. To make matters worse, the streets were paved with bricks and small cobbles (*calçadas*), which did facilitate the (improved) circulation of horses and mules, but was easily damaged (Stevens 1706:181; Oliveira 1893:536). Thus, by the 17th century, the city of the "seven hills" took on the aspect of a gigantic maze and moving through the old town proved to be a challenge, as the urban grid of the city was a mixture of prior occupations starting with the Romans, followed by Muslim dominion and the medieval Christian kingdom. Naturally, this exacerbated the issues discussed in this article.

Demographic growth, one outcome of the overseas endeavors that started in 1415 with the conquest of Ceuta in North Africa, had already led to Lisbon's expansion outside the medieval city walls, one of the examples being the neighborhood of Bairro Alto (originally named "Vila Nova de Andrade"), which dates back to 1498 (Carita 2012:11–13; Pavel 2015:187; Leão 2021:30). Beyond these factors, there was one major reason for the increasing traffic congestion in this medieval yet newly globalized city: the appearance of new vehicles.

Information about traffic problems in the city is recurrent in several different periods, although the situation seems to have peaked in the 17th century, and the necessity of solving the problem forced several kings to act, leading them to pass laws and regulations in response. Among these, the 1686 law was the most far-reaching—stipulating that several traffic signs were to be put up in places around the city where circulation was more convoluted and caused a higher number of problems.

Taking this into account, the purpose of this article is to analyze the extant traffic signs and understand how they can provide a better knowledge not only of the traffic conditions in Lisbon in the 17th century and the role of the city council in regulating it, but also of the impact on people's everyday life in the city. The human aspect of this archaeological evidence is extremely important, since it can help to make sense of what it was like to live and move within Lisbon at the time, but, more importantly, how the urban grid was constructed in the mental realm, affecting the way

Table 1 The Lisbon traffic-rule signs and their inscriptions

Sign	Place
1	In the walls of the houses on Rua do Salvador: His Majesty orders that carriages and smaller vehicles which come from Escolas Gerais go back to that same part.
2	In the area of the Escolas Gerais: All those that come from the lower part should go back to the same part.
3	In the wall of the São Tomé Church: Those who come from Rua do Salvador should go back to the same part.
4	In the walls of the houses where the General Vicar died, close to the houses of the Grão Pior do Crato Manoel de Melo: Those who come from the Porta do Sol should go back to the same part.
5	In the wall of the Santa Luzia Church: The ones who come from the Portas do Sol should go back to the same part.
6	Below when coming to the Limoeiro: Those who come from the Limoeiro should go back to the same part.
7	In front of the Beco do Bogio: Those who come from São Jorge Church should go back to the same part.
8	Below the São Jorge Church: Those who come from Arcebispo should go back to the same part.
9	Below the Aljube in the walls of the first houses: Those who come from the Cathedral main entrance should go back to the same part.
10	Another on Rua da Correria from the side of the Madalena Church: Those who come from Madalena should go back to the same part.
11	On Rua das Archas on the side of the São Nicolau Church: Those who come from that church should go back to the same part.
12	On Porta Nova on the Pasteleiro corner: Those coming from Poço do Borratém should go back to the same part.
13	Going from the Church of São Pedro da Praça to the Church of São Pedro: Those coming from São João should go back to the same part.
14	Farther down the same street: Those coming from São Pedro should go back to the same part.
15	In the street of the Porta da Cruz, on the Pasteleiro corner: Those coming from Porta da Cruz should go back to the same part.
16	On Rua de Santo André: Those coming from Rua do Salvador should go back to the same part.
17	At the Palace of Rua dos Cavaleiros: Those coming from Mouraria should go back to the same part.
18	On Rua da Oliveira: Those coming from the Bem Formoso should go back to the same part.
19	On Rua Nova da Palma: Those coming from São Domingos Church should go back to the same part.
20	In the middle of Rua dos Ourives: Those coming from Rua Nova or Rua da Moeda should go back to the same part.
21	At the beginning of Rua dos Ourives on the side of Rua dos Douradores: Those coming from the Douradores side should go back to the same part.
22	In Picheleira: Those coming from Picheleira should go back to the same part.
23	In the street going from São Tomé to Santo André: Those coming from Santo André should go back to the same part.
24	On Rua dos Cabeiros: Those coming from Victoria Church should go back to the same part.

people circulated within the city, and how they perceived both space and time in that century.

Having this in mind, the investigation presented here made use of archaeological, historical, cartographic, and geographic information to try to reconstruct those aspects of the past, combining an "analysis of material culture and the human modification of spaces" (Smith 2014:308). Documentary information mentions the existence of 24 signs (Table 1). Of that total, 21 were inside the city walls, precisely in locales with more traffic problems according to written evidence. Two of them were outside the walls, but still near the walled area (Signs 17 and 18), and only Sign 22 was completely outside of downtown Lisbon (Fig. 2). It is also important to mention that, although there were 24 signs, 25 locations are given on the map. This is because one of the examples that survived to the present is not in situ. That being the case, Sign X corresponds to the present location of that sign, but originally it would have been located in one of the 24 places shown in Fig. 1, although it is impossible to determine precisely which.

To build both maps (Figs. 1, 2), firstly, the surviving traffic signs were registered and preliminarily analyzed. The second step was to gather pertinent historical information available to understand the urban grid of the city at that time and the traffic circulation patterns within it, and also the impact these had on the daily lives of Lisbon's inhabitants and the actions taken by the king and the city council to

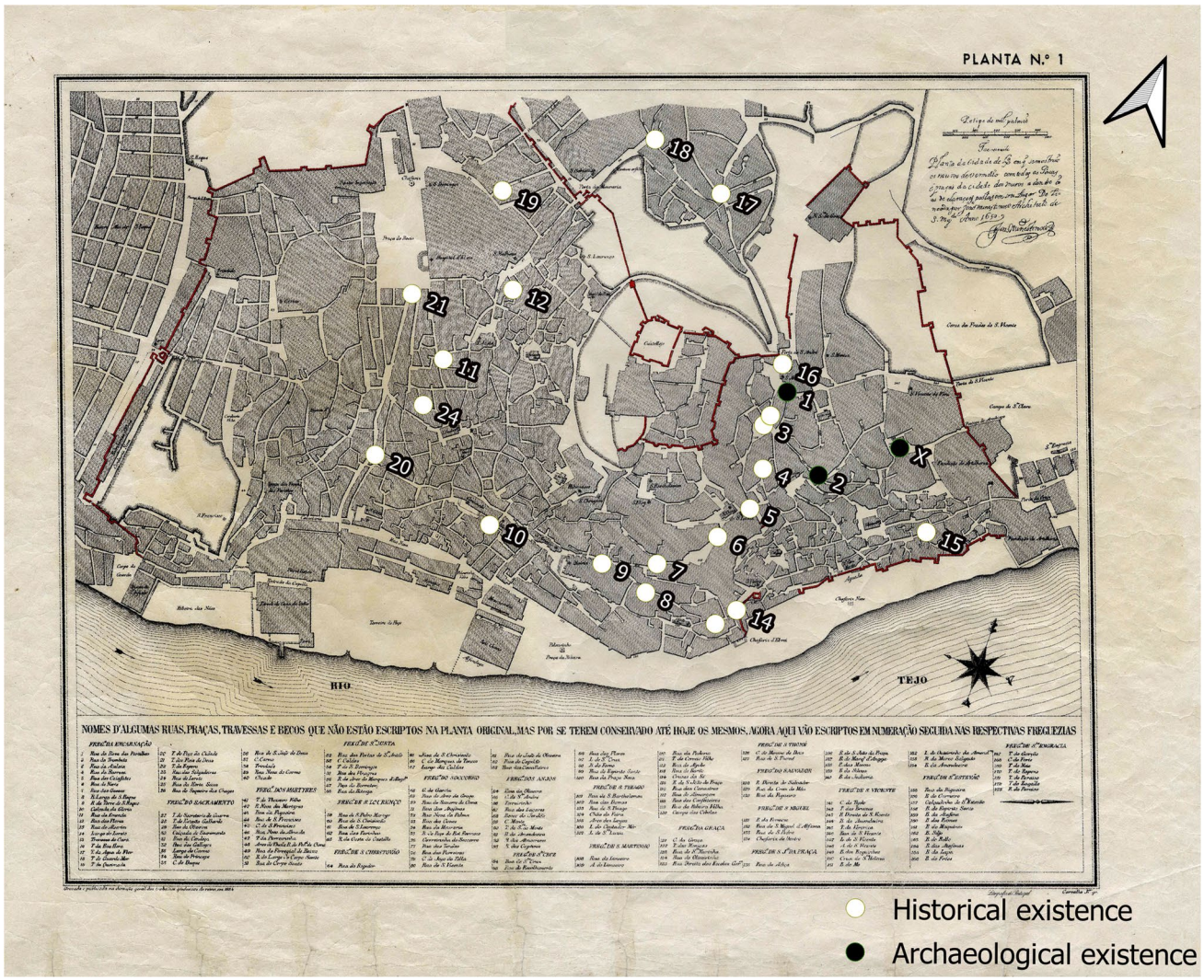

Fig. 1 The possible location of the traffic-rule signs on the *Planta da Cidade de Lisboa* (Plan of the City of Lisbon) by João Nunes Tinoco, ca. 1650 (*black circles* indicate extant signs). (Figure by authors, 2023.)

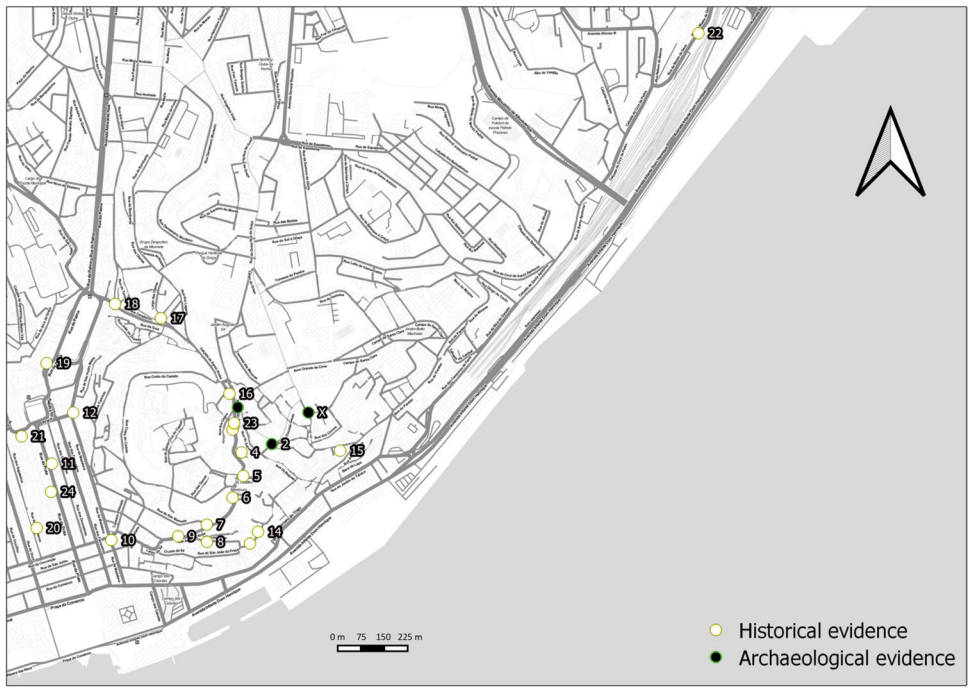

Fig. 2 The possible locations of the traffic-rule signs on a current map of Lisbon (*black circles* indicate extant examples). (Figure by authors, 2023.)

introduce improvements. Contemporary accounts and later studies were used, but one essential source of information is legal decrees. In conjunction with this information, a more holistic study of the traffic signs was made, and they were integrated in a greater effort to improve understanding of circulation within the city and included in the already-mentioned group of traffic signs that were then marked using cartographic and geographic data.

Using a 1650 plan of Lisbon produced by João Nunes Tinoco (Fig. 1), we have tried to identify the locations of all the signs. The intent was to use the locations noted in contemporary documents as much as possible, using the original names of those places (churches, streets, alleys, etc.). In addition to the 17th- and 18th-century names, we also used contemporary toponyms and locations that survived after the 1755 earthquake, although often with a different configuration. It is fundamental to make clear that the 1755 earthquake left the city almost completely destroyed. The Alfama area, where the surviving signs are located, is an exception and an area of the city where buildings collapsed, but the street organization was maintained. Apart from that region, the city was totally reconstructed after the earthquake, making it difficult to locate the previous streets and even some of the buildings with a great degree of accuracy, turning the topographic analysis into a difficult task. It is also important to note that the circulation improved in the reconstructed areas, especially since these corresponded to wide streets and squares.

We overlapped a current plan of the city with the 1650s example and, taking into account the available information, presented a proposal for the location of the signs (Fig. 2). The signs were mainly positioned in places with difficult passage, whether the cause of such difficulty was the width of the street, its pathway (with sharp angles, for example), or the topography of the locale (Fig. 3). For the mapping of Figures 1, 2, and 3, we used GIS through the open-source software QGIS. The map produced by João Nunes de Tinoco (Fig. 1) and the Lisbon topography map (Fig. 3) that we used in QGIS has been georeferenced and uploaded by the Municipality of Lisbon on its Web GIS site.[1] For the

[1] <https://websig.cm-lisboa.pt/MuniSIG/visualizador/index.html?viewer=LxInterativa.LXi>.

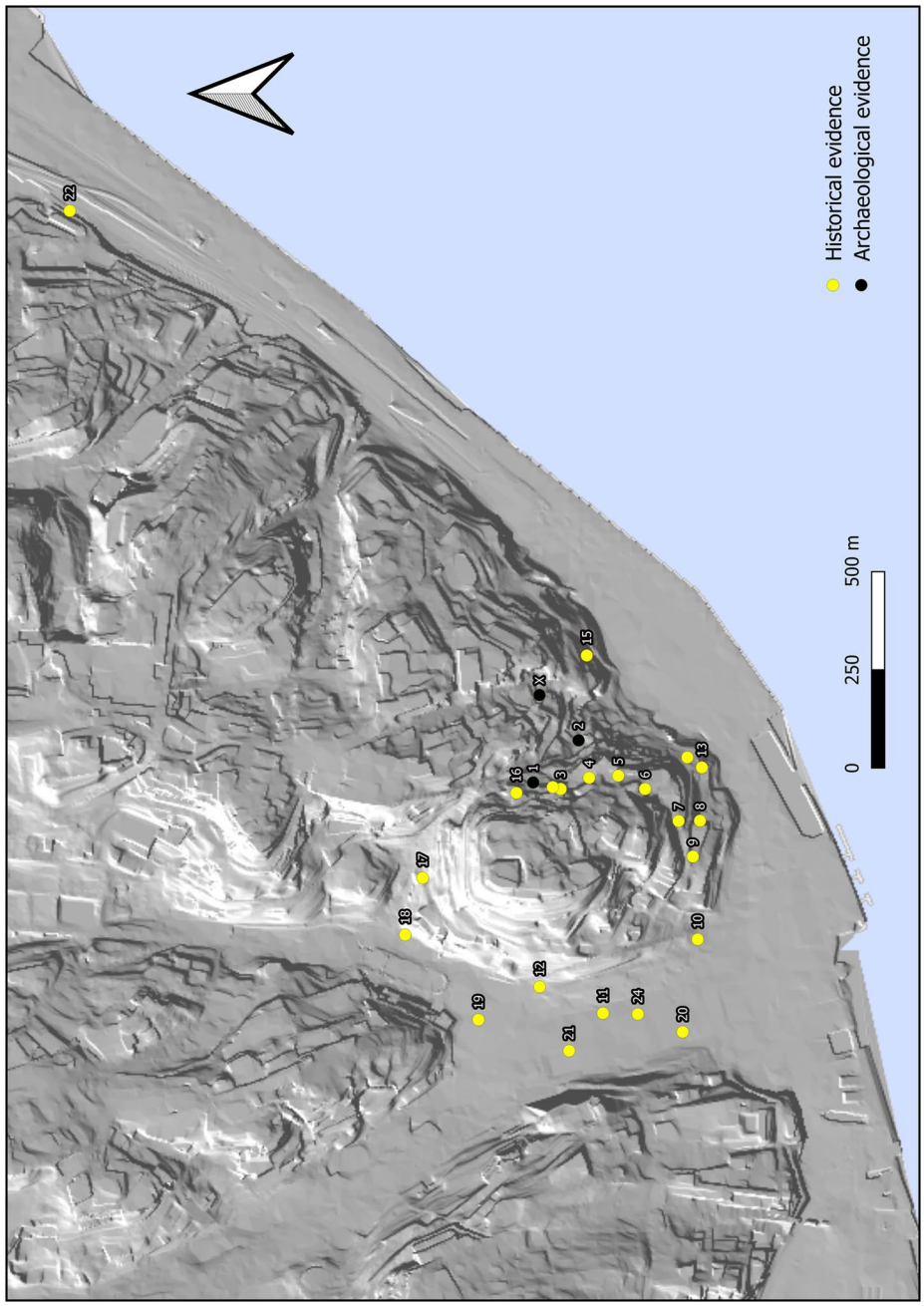

Fig. 3 The possible place of the traffic-rule signs on a topographical map of Lisbon (*black circles* indicate extant examples). (Figure by authors, 2023.)

contemporary map of Lisbon (Fig. 2), the preloaded maps in QGIS were used.

Urban Circulation in Early Modern Lisbon

Lisbon's medieval urban center with all its accompanying characteristics, combined with the new means of transportation (coaches) developed in the early modern period, was the main reason for the exponentially increasing difficulty in circulating through the city. Coaches started to be used during the reign of King Sebastião (1557–1578), but only became widespread in the 17th century, reaching their peak in the last decades of the century (Castelo-Branco 1990:41–43). Such vehicles had considerable dimensions, four big wheels, and were pulled by two or more pairs of animals. Furthermore, they were also very heavy and moved relatively slowly, making them unsuitable for moving in a city such as Lisbon, with its medieval urban pathways, which would lead to the continuous use of litters, the preferential means of transportation for ladies and aristocrats (Castelo-Branco 1990:43). This can be illustrated by several contemporary accounts, including descriptions of Lisbon provided by foreign visitors, such as John Stevens and Charles Dellon. The former states that "for the most part the streets are very narrow being built after the old Moorish fashion, and this obliges the gentry to continue the use of horse-litters, more than of coaches, which cannot pass in many considerable parts of the town" (Stevens 1706:181). Similarly, the latter author notes that "[l]a plupart des rues de Lisbonne sont si étroites qu'à peine il y peut passer un carrosse, ce qui fait que les personnes de qualité vont ordinairement en litière"[2] (Dellon 1737:175). In addition to the coaches and litters, people also used horses and mules (Castelo-Branco 1990:44).

The situation became such that a contemporary account from Pêro Roiz Soares tells us that the prohibition of coaches in 1626 had left the city unburdened (quoted in Castelo-Branco [1990:42]), highlighting the impact these vehicles alone had on urban movement. In fact, the many issues and downsides brought on by the coaches turned them gradually into a source of discontentment and even hatred. For example, there is a 17th-century satire that blames them for financial crises and states that they deserve no more than general extinction or a bonfire (Castelo-Branco 1990:42).

Conversely, this type of carriage was seen as a luxury item at the time (being very expensive and sometimes imported directly from as far afield as Friesland or other places in Europe) and therefore coveted by the upper classes (Castelo-Branco 1990:42,43). This led to an increase in the number of coaches that, in turn, resulted in the issue of a royal decree on 26 August 1626 prohibiting their use in Lisbon, a measure that was revoked just two months later.

Considering what has already been said about the urban grid of Lisbon, its topography (with many sloping hills) made it difficult for coaches and even litters to reverse course, also because there was usually not enough space to turn on the spot. In fact, in many places, the streets were so narrow that it was impossible for a carriage and someone on horseback to pass at the same time. As traffic in the capital was almost constant, these circumstances led to arguments that sometimes turned into violent altercations to such a degree that one of the main concerns of the authorities was addressing the encounters between coaches or litters, and even people getting hit by these vehicles (Pereira 1896:4–5; Castilho 1962:18; Castelo-Branco 1990:20,25,39).

This chaotic and almost anarchic state of circulation within Lisbon is evident from records of many curious incidents that happened in the city. Amongst them, there is one that occurred at the beginning of October 1679 between the carriage of the Marquis of Nisa and also Count-Baron of Alvito and the carriage of the Marquis of Fontes. Upon encountering one another, neither of the involved parties wanted to give way, and they stood there for three hours while their respective servants fought in the street. The situation became such that only the King himself was able to put a stop to it, demanding that both carriages turn back and their passengers return home (Castro 1943:44–45). Conversely, some decades earlier, on 11 November 1654, while facing similar circumstances, the Duke of Aveiro and the Earl of Vidigueira ended up fighting between themselves because both wanted to give primacy of way to the other (Castelo-Branco 1990:41). This type of situation ended up embroiling

[2] Most of the streets in Lisbon are so narrow that a carriage can hardly pass through them, so that people of quality usually go in litter.

not only the carriages involved but all of the nearby traffic, blocking even the passage of pedestrians (Castelo-Branco 1990:41). As a result of these circulation difficulties in Lisbon, several key arteries were periodically closed to the traffic of coaches and litters. The Beco da Cancela (literally, "cancel alley"), for instance, was, as the name suggests, closed to those types of vehicles in that part of the city (Sequeira and Macedo 1940:71–72).

Urban circulation became so convoluted that sometimes the King or the city authorities ordered the transformation of some private houses into public passages. This was the case of a building located between the Beco do Mel and the Largo da Sé, whose interior walkway connecting the two places was opened for the circulation of pedestrians avoiding the streets. Furthermore, there was also Casa dos Bicos, a famous building constructed in the early 16th century that had its doors open during the day so that people would have an extra passage between the cathedral zone and the riverside (Castelo-Branco 1990:41).

As noted above, the difficulties of circulation within Lisbon seemed to reach a point where the King himself had to intervene. This was something that came to be reflected not only in many historical documents (including several decrees), but also in the archaeological data.

Documentary Evidence

Lisbon's urban circulation problems are also visible in official documents from throughout the 17th century. The regularity in appearance of these laws demonstrates that, despite many attempts, the problems continued, and it was necessary to constantly deal with them by passing new rules.

King Philip III of Spain and his successors were among the first monarchs who engaged implicitly with these concerns. The first documents of which we are aware that mention the impact that carriages had in Lisbon's urban circulation date to 1619. In a letter from 15 January, it is mentioned that carriages provoked great damage in Lisbon's narrow streets, and the King declared the need to create solutions for this problem (Philip III 1619). Philip III's death in 1621 may have delayed the resolution of the issue, especially since, at the time, the Spanish kings were ruling Portugal from Madrid.

In 1625, Philip IV passed a law that forbade the circulation of "*machos de sela*" and "*coches de mula*" in Lisbon unless authorized by the King himself. For reasons of which we are unaware, but certainly related to several complaints, this law was suspended for two months, from 13 March to 18 May 1626, and again in June, July, and August of the same year, only to be implemented once again on 21 August 1626. In the 1625 law, it was said that only people with a special permit could use coaches, sedan chairs, mules, and horses in Lisbon, but in the 1626 version of the law an exception was already made for the clergy, law officials, and physicians, in addition to anyone else with a royal permit (Philip IV 1621–1640:153v). Several complaints were made by the clergy, mentioning how this law would go against their most fundamental rights, namely the freedom to move anywhere, which may have caused the alteration of the decree. This is one of the reasons why the King himself had to pass such laws, because they had a serious impact on social hierarchies.

There is no information about any other prohibitions from 1627 until 1650, when, on 12 March, 10 years after the separation of the Iberian crowns, King João IV of Portugal passed a law that prohibited the use of carriages in Lisbon. Yet it is clearly mentioned that this law was passed not because of any circulation problems, but due to the lack of horses in the kingdom (carriages would typically use four or six horses), which were repurposed for the Portuguese Restoration War with Spain. The only exceptions were ecclesiastical and royal officials. A copy of this letter was to be sent to every city in the kingdom in a widespread legal action.

It was not only the King who was trying to solve circulation problems, but other institutions and private entities. On 10 January 1677, the Santo Eloy Convent in Lisbon asked for permission from the city authorities to enlarge the front part of the convent so carriages could circulate more effectively (men of the church were among those who could use carriages without a special license) (Pedro II 1645–1677:fol. 452–456v). In March of the same year, another authorization was requested to demolish a few houses near Beco do Bugio so carriages could pass (Pedro II 1645–1677:fol. 450–451v).

Traffic circulation issues in Lisbon would arise again in 1686, when King Pedro II tried to solve the problem anew, suggesting that all the previously discussed laws were not effective. The first document concerning traffic circulation from the reign of this king is

dated 13 September 1686, and briefly states that all law officials who find people arguing on the streets of Lisbon because of the traffic should arrest them in their homes and make a report to superior authorities (Pedro II 1686b). The fighting implied in this brief document must have been serious, since, in the next month (22 October), the king passed a law that established further circulation and vehicle regulations for Lisbon. This new law pertains specifically to "coches, seges e liteiras" (four-wheel carriages, two-wheel carriages, sedan chairs, and litters) entering the city in high numbers, establishing a general traffic rule that every time that two such vehicles cross in any part of the city, the one going up must be the one to go down to the part it came from, since it was easier to pull back for the ones going up ("encontrando-se em ladeiras coches, seges ou liteiras, aonde, pela estreiteza da rua, seja preciso recuar algum delles, os que forem subindo sejam os que recuem, pela maior dificuldade que tem os que forem baixando"). This document is also significant, since it mentions that all the places where this rule was to be applied must be recorded and, in those places, "em uma das paredes se ponha padrão, em que estará escrito com clareza que deve recuar" (on one of the walls, a sign must be put up clearly mentioning who should pull back when reaching these places). The document also notes that it will be up to the city council to put these signs where problems occur. The problem was serious, since the penalties for not following these rules were five-year deportation to Brazil and a fine of 2,000 cruzados. In addition, the document also states that if anyone uses his sword to solve any problems, he will be immediately condemned without any possibility of gaining a pardon (Pedro II 1686a).

The document does not state where the signs would be located or how many there were, since that was something the city council had to decide. A 1740 publication[3] contains a copy of the King Pedro II document mentioning that the original document indicating the location of the signs existed in the correspondence of one of the city's officials (Ignacio Lopes de Moura), although we were not able to locate it in the city archives. Following the 1740 publication, the 24 signs were put up in different areas of the city (Fig. 1).

Many of these laws were passed by monarchs and not the municipality. This is due to the fact that kings, more than regulating the use of carriages, were also regimenting social hierarchies with the authorization or forbiddance of the use of these vehicles, and that interested the Crown directly (Caetano 2000).

Archaeological Evidence

The archaeological evidence in this article corresponds to the surviving 17th-century epigraphs. Unfortunately, from the 24 known street signs, only three still exist, designated "1," "2," and "X" (Figs. 1, 2, 3). The 1755 earthquake, which almost completely destroyed downtown Lisbon and brought about changes in many other parts of the city, probably took the 21 missing signs with it, and even the three remaining ones are most likely outside their original contexts.

Sign 1, located today on Rua do Salvador (Fig. 4), is probably the only one that is still near its original location, even though the street line was completely changed after the 1755 earthquake.

Sign 2 (Fig. 5), even if it is in the referred area, Escolas Gerais, is inside a building, outside of view from the street, which is not its original location.

Finally, there is the sign denominated "X" (Fig. 6), a sign that does not correspond to any of the 24 signs mentioned in the 1740 document, since it was not possible to recognize which one it was in Pedro II's edict. Three possible reasons may be considered for the "wrong" location of Sign X on the map: someone put it there after the earthquake, it was a new sign referred to in a different and successive document, or we were not able to correctly interpret the past locations in the 1740 document.

Analyzing the three remaining signs, it appears obvious that the King and the city council intended that the most visible part of the law—the

[3] *Additiones aureaeque illustrationes ad librum primum secundae partis praticae lusitanae Emmanuelis Mendes de Castro cum quibus reperiuntur leges extravagantes, epistola regiae, decreta, senatus-consulta, atque aresta senatuum, cum notis specialibus senatoris Ignatii Lopes de Moura, et aliorum insignium senatorum* (Additions and golden illustrations to the first book of the second part of the Portuguese practice of Emmanuel Mendes de Castro, with which are found extravagant laws, royal letters, decrees, senate consultations, and senate arrests, with special notes of the senator Ignatius Lopes de Moura and other distinguished senators), 1740.

Fig. 4 Sign 1, located on the wall of 48 Rua do Salvador. (Photo by authors, 2022.)

signs—would last through time. The signs were made, at least the ones that survived, out of durable material, namely marble for Signs 1 and 2 (Figs. 4, 5), and limestone for Sign X (Fig. 6).

Although the inscriptions are similar in shape, other characteristics indicate that different workshops and different craftsmen were involved. While two of the signs (Figs. 4, 6) have the fields of text separated from the plaque edges by a rectangular frame (Signs 1 and X), the text in Sign 2 does not have a frame (Fig. 5). Also, the measurements of the plaques are all different. While Sign 1 from Rua do Salvador (Fig. 4) is 49 cm wide by 30 cm high, Sign 2 from Rua das Escolas Gerais (Fig. 5) is 39 cm wide and 30 cm high, and, finally, Sign X from Calçada de São Vicente (Fig. 6) is 42 cm wide and 33 cm high.

Although the respective dimensions seem slightly different, when looking at the signs even the letters have different sizes, suggesting different craftsmen/workshops. These differences can have other explanations. They might also indicate that the signs were made and put up over a longer period of time, despite all being dated 1686. If they were made and installed right after the decree was finalized, it seems more likely that one workshop would have done them all and they would have had a more standardized template.

Sign 1 (Fig. 4)
Transliteration: ANNO DE 1686\SUA MAGEST[AD]E ORDE\NA Q[UE] OS COCHES SE\GES E LIT[EI]RAS Q[UE] VIE\REM DA PORTARIA DO\SALVADRO RECUEM PA[RA]\A MESMA PARTE.
Translation: Year 1686, His Majesty orders that the four-wheeled coaches, two-wheeled coaches, and litters that come from the gate of Salvador move back to the same part.

Sign 2 (Fig. 5)
Transliteration: ANNO DE 1686\SUA MAGEST[AD]E ORDENA Q[UE] O[S] CO\CHES SEGES E LIT[EI]RAS Q[UE] VIE\REM DA P[AR]TE DA COCH[EI]RA\DAS CASAS EM Q[UE] VI[VE]R[A]M\O DES[EMBARGADOR] G[ONGALO] D[E] ME[I]RELES\FR[REIRE] E RECUEM P[AR]A A MESMA P[AR]TE.
Translation: Year 1686, His Majesty orders that the four-wheeled coaches, two-wheeled coaches, and litters that come from the part of stables of the houses where the judge Gonçalo Meireles Freire lived, move back to the same part.

Sign X (Fig. 6)
Transliteration: 1686\SUA MAG[ESTA]DE ORD[E]NA Q[UE]\OS COCHES SEGES [E] LIT\[EI]\RAS Q[UE] VIEREM DA ANNO DEP[AR]TE\D[E]

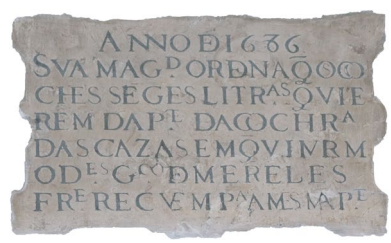

Fig. 5 Sign 2, located inside 88 Rua das Escolas Gerais. (Photo by authors, 2022.)

ANNODE1686
SVAMAGPORDNAÕ
OSCHESSEGELIT
RASÕVIEREMDAPTE
ÐBAIXORECVEMPA
OLARGODASCAZAIDD[...]
[...]MOVZOÐALBQVERQ

Fig. 6 Sign X, located at 48 Calçada de São Vicente. (Photo by authors, 2022.)

BAIXO RECUEM PA[RA]\O LARGO DAS CASAS DO D[ESEMBARGADOR]\[FRANCISCO] MOUZ[INH]O DE ALBUQUERQ[UE].

Translation: Year 1686, His Majesty orders that the four-wheeled coaches, two-wheeled coaches, and litters that come from the lower part move back to the square of the houses of the judge Mouzinho de Albuquerque.

However, not only does the size of the letters demonstrate that the signs were made by different craftsmen, but different masons (*lapicida*) seem to have worked on two of them, at least. Different types of writing were chosen for the different plaques, such as the words "ANNO" and "DE" in the first line of all examples. While in Sign 1 the two Ns of the word "ANNO" and the letters D and E of the word "DE" are separated, in Signs 2 and X the two Ns are joined together, and in the word "DE" the letters are even superimposed. Since there was no lack of space in the first line of each of the signs, this was clearly due to a choice of the mason. Interestingly, Signs 2 and X, though made of different materials, feature the same engraving style, as if the *lapicida* was the same. Would a particular craftsman have worked for two different workshops? Had they run out of marble and made a substitution with limestone (or the other way around)? Or, would Sign X have been made after a second order? The organization of the text in the available space is equally revealing of different craftsmen. The *ordinator,* the person who organized the overall format of text (who could have been another person besides the mason) of Sign 1 needed to reduce the size of the letters on the last line to finish the job, which may suggest a lack of detailed planning, something not evident in Signs 2 and X.

Circulation in Europe

Lisbon would not be the only European capital with traffic problems, although it seems to be the only one that tried to solve the problem with traffic signs. An example is the report of Samuel Pepys, who in 1661 was stopped in his carriage in London traffic for about an hour and a half. In the previous year, another traffic obstruction led to a fight between servants in which Lord Chesterfield's servant was killed. Furthermore, in 1702 the following report appeared in the *London Post*: "Yesterday a Gentleman's coach meeting a hackney in Long-Acre, and the latter refusing to make way for him upon a stop, the Gentleman jumpt out of his coach in fury, and killed one of the hackney-horses." As early as 1722, at the Palais Royal, the carriages of the Duke of Châtillon and the Count of Charolais crossed, and, neither wanting to back down, the count's men began to attack the duke's coachman and horses. An earlier case occurred in Paris in 1655, where a captain of the guard was killed by a nobleman's servant while coming to the defense of his coachman after the carriages found themselves in a similar situation to the one mentioned previously. In response to this, and similar to what happened in Portugal, King Louis XIV instituted a decree forbidding servants to carry swords or firearms (Ladd 2020:195,196). It is possible to understand that the "picture painted for Lisbon" would be similar to that existing in other European capitals, and that these problems would last until at least the mid-18th century.

Bearing in mind that Portugal and Spain were ruled by the same king from 1580 to 1640, most of the reactions to circulation problems were shared by both countries and the laws applicable in both territories. Despite the lack of information, we know that circulation problems are reported in Seville as early as 1578, when four-horse carriages are said to not be able to circulate in the city (Lopez Alvarez 2004:268). Similar situations took place in Madrid, where carriages were considered an urban problem. In 1661, trying to solve some problems, the municipality declared that

balconies would have to be located 14 ft. from the ground (Lopez Alvarez 2004:394), allowing the circulation of coaches.

As stated above, we believe that this type of situation was happening all over Europe to some extent. Since the 16th century, laws were enacted in Italy regarding the regulation of coaches, although more concerned with restricting luxury than circulation problems (Belloni 1901:28–30). However, in Florence, even before these laws, the coaches "trovarono la pubblica avversione per il rumore che facevano sul selciato delle strade causa i difetti della loro costruzione" (Belloni 1901:29), indicating that, aside from their use by wealthy families, coaches were not that popular because of the noise they made. Regarding the limitation of the use of coaches inside Italian cities, the first information that we have collected regards the final quarter of the 18th century (Belloni 1901:66). However, it is probable that some previous laws already existed, and not only regarding luxury limitations. As in other countries (although Italy was not yet unified), there is no information regarding the use of traffic signs during the early modern age.

This concern with the state of circulation and the problems arising from it, and the efficiency in establishing measures to improve circulation in Portugal seem to have a unique character in the European panorama, however. In fact, at this time references appear that indicate that large European capitals did not make the same attempts. Among these we find the example of Paris, where "[i]l n'y avait évidemment aucun servisse appelé a régler la circulation"[4] (Mongrédien 1964:34).

Discussion: Urban Circulation and Everyday Impact

By 1686, at least 24 traffic signs were located in several parts of Lisbon trying to improve urban circulation. Despite the enormous effort made by the King and the city council, the impact of these signs may have not been as significant as one would expect, nor did they improve the circulation within the city. News of ongoing problems appear in later documents, with one example from 1718, more than three decades after the signs were put in the walls of the city, describing fights arising in Lisbon, some of them with sticks and swords, every time a local official tried to apply the fines defined by the 1686 laws (João V 1718). The king at the time, João V, continued to deal with such problems.

As mentioned above, the signs seem to have been located in strategic places, particularly where circulation problems were most frequent. Some of the streets were so narrow that not even two horses could pass at the same time, made worse if the traffic jam was provoked by two carriages. This seems to have been the case for the problems that Signs 13 and 14 were trying to resolve. They were both located in the street that connected the churches of São Pedro da Praça and São João. While on one side of the street, the vehicles coming from São João were motioned to go back when another vehicle coming from São Pedro appeared. Farther down the road, when vehicles were coming from São Pedro, it was their place to return. The signs were essentially prescribing regulation of circulation in a manner no different than a traffic light would do automatically nowadays.

Although the King Pedro II document states that 24 of these signs were made and put in allocated places, it is impossible to confirm whether all the 24 were put up within a narrow timeframe or if some were made years later and distributed across other parts of the city, depending on issues arising from traffic circulation. The difference in the raw materials used in their production (marble and limestone in the three surviving examples) may indicate that they were not all made in the same workshop at the same time. Even if they all bear the 1686 date, this may only indicate the year of the law's proclamation and the royal order of their placement.

These signs are fundamental to the study of urban circulation, and, when analyzed from an urban organization perspective, they contain valuable information. Usually, the landmarks referred to in the signs are important public buildings, such as churches, palaces, prisons, and convents, places of political, economic, and ritual importance that should have lasted for centuries. Indeed, everyone in Lisbon today still knows where the Aljube Prison or the Magdalene Church (Igreja da Madalena) are located. However, it is interesting to see the references to specific people as markers of urban orientation. The 1740 document, in describing one of the signs (No. 4), mentions that it

[4] There was obviously no service called to regulate traffic.

was located on the walls of the houses where the general vicar died and close to the houses of the grand prior of Crato Manoel de Melo, who died in 1693. It is interesting to note that everyone in Lisbon is assumed to have known about the death of the general vicar and who Manoel de Melo was. The document could have been a passing reference, but, in two of the signs, the ones written in stone and made to last generations, names of seemingly significant personages are also mentioned. In the sign located in Calçada de São Vicente, there is a clear reference to the houses of Judge Francisco Mouzinho de Albuquerque, who was active between 1681 and 1689 (Camarinhas 2017). Historical research reveals that he was, in fact, an important personality in 17th-century Lisbon, and it was assumed that everyone passing in that narrow street in 1686 knew where he lived. The sign on Rua das Escolas Gerais mentions the stables of the house where Judge Gonçalo Meireles Freire lived, once again presuming that everyone knew where these people had their houses.

This idea, that there are certain places known by the people who lived in particular locales and used as a means of orientation, was a common practice in Portugal at least until map applications appeared in smart phones. Some of the authors still remember that this was common practice in the greater area of Lisbon until the late 1990s, at least. One of the most paradigmatic examples was a roundabout in Lisbon known as the Rotunda do Baptista Russo. This was the name of the owner of a car dealership in the vicinity, and although no one today under the age of 25 would know where this was, the older generations still use this geographical reference, even though the car dealer and roundabout are gone.

It is also interesting to debate how these signs were personalized according to the places in which they were located. The level of standardization of today's road signs, allowing people from different cities and even of different nationalities to recognize them and to respect their directives, was not a matter of concern in 17th-century Lisbon. According to the general law of 1686, carriages going up had to allow carriages going down to pass. This may have generated more standardized signs. However, to understand 17th-century signs one not only had to be able to read, something that was not within the reach of ordinary people, but people had to also be able to read Portuguese, something that automatically excluded foreigners. However, the most significant particularity for the signs to be fully effective was the need to be a Lisbon citizen or, at least, to know Lisbon, as the contents of the signs are particularized to where they were installed, as noted in the discussed examples.

Many theoretical paths could be drawn from this relation between people and the urban space, and although this article does not engage in debating how 17th-century Lisbon inhabitants felt about the city, it would be interesting to realize that some ideas could be explored in the future. This construction of urban movement in late 17th-century Lisbon was influenced by space through different constructions with whom people had to engage in an embodied relation with streets, roads, buildings, and vehicles, but also time, since the perception of change relates to space. This idea was drawn from Lefebvre, who defends that, in a body relation between someone and the urban environment, time is distinguishable, but not separable from space—the two of them manifest themselves as different yet inextricable (Lefebvre 1991:175). But agents around the city are not just engaged in a relation with physical constructions and "bodies of 'users' are caught up, not only in the toils of parcellized space, but also in the work of images, signs and symbols" connected to time and space (Simonsen 2005 2). We believe that this can be perceived by the attempt to organize urban circulation in 1686, since not only did people really engage physically with the city, but the references to other people and houses reveal how these symbols and signs created another city, one that existed daily in the minds of people.

Conclusion

By the 17th century, the streets of numerous European cities had become too narrow to accommodate urban growth, further compounded by circulation problems arising from people using different-sized carriages, litters, and horses. Although not many iconographic representations exist of 17th-century Lisbon, the representation of Terreiro do Paço in 1662 (Fig. 7) shows that carriages and litters were, in fact, large vehicles that would have faced serious circulation problems in pre-1755 Lisbon.

Circulation problems were not exclusive to Lisbon or Portugal in the European 17th-century urban perspective. All major capital cities had originated

Fig. 7 *Terreiro do Paço* (1662) by Dirk van Stoop. (Image courtesy of the Museu da Cidade, Lisbon.)

from medieval urban centers confined within fortification walls. In 1636, Henry Peacham, an English writer who visited Lisbon at the time, wrote:

> [I]n certain places of the City, ... I have never come but I have there the way barricaded up with a coach, two, or three, that what haste, or business soever a man hath, he must wait my Lady's (I know not what) leisure (who is in the next shop, buying pendants for her ears: or a collar for her dog) ere he can find any passage. (cited in Jones [2019])

This statement indicated that, once in a while, carriages would come across obstacles in the streets and were not able to pass. The same problems existed in London (Ladd 2020:195), as well as Paris. Paul Scarron (1610–1660), a Parisian poet, wrote that "carriages, horses and noise ... that is Paris," while Nicolas Boileau (1636–1711), another writer, refers to the noise, traffic problems, and insecurity on the narrow streets (Galoin 2005).

Therefore, similar problems were widespread across several European cities at the time, although it also seems that Lisbon was the only city where some level of traffic regulation existed, and it was possibly one of the first cities to have traffic signs, as early as 1686. These signs reveal that Lisbon was a city where mobility was seen as one of the most fundamental rights of some of its inhabitants, and that it was taken for granted to such an extent that the government had to implement regulations on it.

The signs reveal that an effort was made to regulate traffic problems; however, when analyzing the contemporary texts, it is noteworthy that they are also a reflection of a social urban landscape, where such aspects as mobility, inequality, and mental, spatial, and temporal organization are combined, especially when direct references to buildings where people lived and died are made, providing an idea how time was seen in those days, believing that those people and their actions would never be forgotten, durable in time and space.

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Conflict of Interest On behalf of all the authors, the corresponding author states that there is no conflict of interest.

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